Spring 2011

The Influence of Dual Language Education Upon the Development of English Reading Skills of Kindergarten Through Grade Two Students

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THE INFLUENCE OF DUAL LANGUAGE EDUCATION UPON THE DEVELOPMENT OF ENGLISH READING SKILLS OF KINDERGARTEN THROUGH GRADE TWO STUDENTS.

BY

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Submitted in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education in Education Leadership, Management, and Policy
Seton Hall University

2011

SETON HALL UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN SERVICES
OFFICE OF GRADUATE STUDIES

APPROVAL FOR SUCCESSFUL DEFENSE

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ABSTRACT

The Influence of Dual Language Education Upon the Development of English Reading Skills of Kindergarten through Grade Two Students.

The purpose of this inductive and quantitative research study is to examine the influence of dual language education upon the development of literacy skills in English proficient kindergarten through grade 2 students. Secondly, this research is purposed to aid in filling the void in the limited way in which educational researchers have examined quantitative research of early elementary English proficient dual language students' reading development disaggregated by gender and ethnicity. Finally, this study is purposed to be utilized as an integral component of the discussions leading to policy and program creation and change by educational leaders.

An equal number of students from the dual language and the English only environments for each grade level were selected. Baseline equivalency testing was conducted to test for significant differences between groups. Both groups reflected comparable amounts of students in respect to gender and racial/ethnic representations. Students were selected for the sample based on a systematic random sample technique. Every third English only environment student with valid assessment scores was eliminated from the data pool. The remaining students comprised the sample population. The study analyzed pre and post test measures of English proficient students' performance on the Developmental Reading Assessment – Second Edition (DRA2). Scores were compared using Pearson's Layered Chi-Square Contingency Test of

Independence Analysis. This study was to more acutely investigate the gradation of DRA2 performance by cohort, ethnicity, and gender.

Overall, the results indicate a significant change in overall reading ability for all students with English speaking proficiency in all grade levels for all years. This research study implies there was a significant positive change in the overall reading ability of predominantly non-White and female students in either program who were also in grade 1. This research study also implies there was a significant negative change in overall reading ability of predominantly Latino and male students in kindergarten English only environments. This research study does not conclude there is a direct influence of dual language education upon the English reading skills of kindergarten through grade 2 students.

ACKNOWLEDGEMENTS

There are many people who have played pivotal roles along this leg of my journey to whom I owe my gratitude.

First, I would like to thank my Dissertation Mentor and Committee Chair, Dr. Elaine Walker. Her statistical prowess has enabled me to enjoy the element of my doctoral studies which initially produced for me the most anxiety. Dr. Walker's calm and spiritual demeanor has made the dissertation process rigorous yet accomplishable.

I would also like to thank Dr. Daniel Gutmore. It is ironic that I began and concluded my doctoral experience at Seton Hall under his tutelage. Dr. Gutmore single-handedly shifted my educational leadership perspective to that of the structural frame. The focus on this frame has been the skill I've most utilized in preparing for a new chapter in my professional journey.

Additionally, I would like to thank Dr. Robert Pauline. Dr. Pauline has demonstrated an enthusiastic sense of support that has allowed me to feel this process was accomplishable during my time of personal doubt. I thank him for his dedication of time and his quiet, yet unmistakably insightful, approach.

I wish to thank my Seton Hall family, Cohort XIII, the greatest group of minds I have ever known. I thank all of us for understanding and demonstrating the true meaning of the word "cohort". I would especially like to thank my "SHU Crew" – you know who you are. Thank you to Dr. James Caulfield and Ms. Lynn McKenna, the foundation and the driving force behind the Executive Ed.D. Program, respectively.

I owe my deepest gratitude to my "Principal Emeritus", Dr. Nettie Webb. During my employ as a teacher under her supervision, she saw in me the promise I didn't

recognize in myself. She is an educational force who will never be replicated. It is due to her leadership that I have learned how to follow in the footsteps of a great leader and now try to lead by example. From her, I've learned to never seek to be first, but always be first to seek the need of others. Dr. Webb will forever be my administrator of reference. I thank her for her confidence in me and for being a part of my educational experience.

DEDICATION

I dedicate this work to the most important element in my life -- my family. To my extended family, to my family members who are no longer with us in this life, and to my close friends, I thank you for making my village as wide and yet, as close and full of love as anyone can have.

To my dear grandmothers, Keturah and Julia, I thank you for being the creation of my love, the foundation of my beliefs, and the support upon which the entire family can always rely. You are my foundation and my rock.

To my beloved parents, Carl and Jean, I thank you for teaching me love, for your unwavering support and encouragement, and for molding my mind, my spirit, and my heart. You are the basis of my love and my love for learning.

To my loving sister, Nadia, I thank you for being more than a sibling -- I thank you for being my friend. You are my reason for persevering and my example of graceful enduring. You are my hero.

To my endearing son Carter, I thank you for teaching me innocence once again. You are the reason why I attempt to do and be my best daily. You bring laughter and promise to my life. Whatever I accomplish, you can surpass. You are my pride and joy.

I most especially dedicate this work to my friend, my partner, my love, Tara. You are my constant force of understanding and my head cheerleader. You make me soar and keep me grounded. I thank you for allowing me to love you, and for loving me in return. You are the best of me.

God has blessed me with each of you. Without Him or any one of you, this would not be possible. I love you all very dearly.

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Chapter I

THE PROBLEMS AND PROCEDURES

Introduction

The benefits of helping Americans acquire a second or third language are significant. Strengthening this one area – foreign language instruction – helps to…lift other areas of education as well ….Here is what research says: Children who have studied a foreign language in elementary school score higher on standardized tests in reading, language arts, and mathematics. They also show greater cognitive development in areas such as mental flexibility, creativity, tolerance, and higher order thinking skills – four qualities that are very desirable in today's workplace….Research suggests that students acquire foreign languages more easily when instruction begins in the early grades…we can increase our effort and improve foreign language instruction [in] what are called "dual language" programs. These differ from regular foreign language instruction in that students are immersed in English and a second language, rather than being taught the second language as a separate subject.

In dual language programs, approximately equal numbers of English-speaking and non-English speaking students participate in classrooms, with every student challenged to meet high academic standards for each subject in both languages. Again, this approach is backed by research showing that students in high-quality dual language programs have higher achievement than their peers who are not enrolled in a language program. I have called on educators and community leaders to create more dual language [programs]….We will continue

> to do everything we can to ensure that bilingual programs make a positive difference in helping students learn English and achieve academically. (Riley, 2000, paras. 3,8,9,17-20, 25)

Former Secretary of the United States Department of Education, Richard W. Riley's call to create more dual language programs to benefit the academic achievement of our children has lighted a fire under the development of program initiatives in many school districts nationwide. We are experiencing a globalization of our small communities in rates unlike which we have experienced since in the history of legal immigration to the United States. The rate of immigration to the United States for the decade spanning 2001 to 2010 was projected to be approximately thirteen million people, almost four million more immigrants than the total immigration influx during the height of immigration trends a century ago. In New York, this trend is especially evident in many Westchester County suburban towns.

According to Cummins (1981), research-based theory in second language acquisition has strongly supported bilingual education. Using the second language learners' first language in school is important because: (a) bilingual students develop vital background knowledge and concepts when they obtain intelligible input in their first language, aiding in their achievement academically later in English, (b) when students possess a well-developed primary language, the second language acquisition becomes more effortless, and (c) bilingual students develop an appreciation and intrinsically value their native language and culture and preserve essential family bonds. This lessens the

potential for discord between school and home values (Cummins, 1981). Research conducted during the past few decades establishes convincing evidence that bilingualism has a positive effect on cognitive processing. It is now generally accepted that bilinguals who have achieved a high level of proficiency and balance in their native language and target language outperform monolinguals on verbal and nonverbal measures of intelligence as well as demonstrate greater cognitive flexibility than their monolingual counterparts on tasks requiring complex problem-solving skills (Nanez & Padilla, 1995).

Dual language education programs as we know it today emerged from the feasible melding of several programs that began approximately 40-50 years ago. During the early 1960s influx of economically privileged Cuban refugees, the need for an effective program that would successfully aid in the education of these immigrants had spawned. Considerable research has pointed to dual language education as the preeminent way for native English speakers, as well as non-English speakers, to achieve biliteracy and high academic achievement, and research reports nationwide repeatedly credit dual language education for higher test scores (Christian, Howard, & Loeb, 2000; Lindholm-Leary, 2001; Thomas & Collier, 2002). The goals encompass academic, language, and social development equally without any one area receiving a higher level of importance over the others. One of the most outstanding aspects of dual language education programs is that it serves both native language students and target language students in the same classroom, and factors related to language stature and expectations for different linguistic groups are important for determining program outcomes (Mora, Wink, & Wink, 2001). According to Mora, Wink, and Wink (2001), a cornerstone of dual language education programs is to incorporate effective language teaching techniques. Language is used as

the medium of instruction rather than it being the goal of instruction. The students learn language primarily through the content. Dual language programs share the same challenging academic and language development standards as basic kindergarten through grade 12 education. Researchers suggest that as a result of this program, the children become both bilingual and biliterate by the end of sixth grade (Cloud, Genesee, & Hamayan, 2000).

Rarely have researchers disaggregated by gender and ethnicity the data of early elementary English proficient dual language students' English reading development. The major focus of past research has not been oriented towards examining ethnicity based data on the early elementary level. The most relevant ethnicity-based disaggregated findings presented the results of the second year of a 4-year longitudinal evaluation of a partial French immersion program in Cincinnati, Ohio in 1991. Holobow, Genesee, and Lambert compared the curricular progression of minority group (Black) students to majority group (White) students. The English native language development, mathematic academic achievement, and French second language attainment of pilot groups of Black and White students who were in grade 1, as well as those of a follow-up cohort of kindergarten students, were assessed. The results showed that performance differences in English and mathematics between subgroups of students did not depend on the program of instruction they were receiving. Furthermore, it was found that the Black students scored as well as the middle-class and White students on the French language tests (Holobow, Genesee, & Lambert, 1991).

The preponderance of recent research relating to dual language or bilingual programs such as that of Cummins (1981), Nanez and Padilla (1995), Christian, Howard,

and Loeb (2000), Cloud, Genesee, and Hamayan (2000), Lindholm-Leary (2001), Mora, Wink, and Wink (2001), and Thomas and Collier (2002), focus on the influence or effect of programs on the development of skills mostly in native Spanish speaking students, leaving the area of skills development for proficient English speaking students in dual language immersion programs virtually untapped. A limited way in which educational researchers have examined the research, particularly in quantitative research disaggregated by gender and ethnic differences of early elementary English proficient dual language students' English reading development, has led to a void in dual language program data and literature.

The school district examined in this study (the District) operates in a suburban town in Westchester County, New York. The District itself is comprised of 6 schools: four elementary schools, one middle school, and one senior high school. The entire student population of the District is approximately 4,500 students. The District's Asian American/Pacific Islander (Asian) student population accounted for approximately 5.2 percent of the total student population, the Black/African American (Black) student population accounted for approximately 13.9 percent, the Hispanic/Latino American (Latino) student population accounted for approximately 46.9 percent, the Multiracial student population accounted for approximately 1.6 percent, and the White/European American (White) population accounted for approximately 32.3 of the total student population according to 2010-2011 New York State Basic Education Data System district data.

In response to Former Secretary Riley's call to ensure the success of our students through a language immersion program, the District created its dual language program in

2004. Headed by the District's Department of Literacy and English as a Second Language, the dual language program was created to teach students to speak, read, write, and listen in two languages, English and Spanish, aligning the mission of the dual language program with New York State Learning Standards. The District's dual language program was created to develop bilingualism, bi-literacy, and the ability to understand, read, and write in both languages by integrating English proficient and native Spanish speakers as they learn science, social studies, and mathematics via the core curricula.

Purpose of the Research

This research study examines the influence of dual language education on the development of literacy skills in proficient English speaking students in kindergarten, grade 1, and grade 2. Due to the current accountability climate resulting from the No Child Left Behind Act of 2001 and the American Recovery and Reinvestment Act of 2009's Race to the Top Fund, the demand for research by principals, central office school district leaders, and superintendents seeking and requesting relevant and current research based on disaggregated data to be cited during discussions surrounding the adoption of programs that may produce better student outcomes is ever increasing. According to The Council of Chief State School Officers (2008), the Interstate School Leaders Licensure Consortium Standard Number Two states that school administrators must promote the success of all students by advocating, nurturing, and sustaining a school culture and instructional program conducive to student learning. The standard states that the administrator must have knowledge and understanding of student growth and

development, applied learning theories, curriculum design, implementation, evaluation, and refinement. The standard continues by declaring that the administrator must also facilitate processes and engage in activities ensuring that curriculum decisions are based on research and the recommendations of learned societies. It is the researcher's intent that this work will be used by educational leaders' during discussion surrounding the "Structural Frame" task of program creation as detailed by Bolman and Deal (2008).

The researcher aims for this study to be utilized as an integral component of the discussions leading to policy and program creation and change. More importantly, this study is intended to correlate with other studies in the exploration of the untapped area of skills development for proficient English speaking students in dual language immersion programs. It is also proposed that this study will aid in filling the void in the limited way in which educational researchers have examined the research, particularly in the area of quantitative research disaggregated by gender and ethnic differences of early elementary English proficient dual language students' English reading development.

Problem Statement

What influence does participation in a dual language program have on the English language literacy skills development of kindergarteners, grade 1, and grade 2 students? This study is based on a quasi randomized design comparing a systematically random sample of the English only environment population and a systematically random sample of dual language population during the academic years 2007-2010.

Significance of the Study

This study is significant as the researcher intends for this study to be utilized as an integral component of the discussions leading to educational policy and program creation and change throughout the nation. This study can further be used to support the benefits of an enriched immersion program to students based on the hypothesis that the program improves student English language literacy skills. The majority of recent research relating to dual language or bilingual programs such as that of Cummins (1981), Nanez and Padilla (1995), Christian, Howard, and Loeb (2000), Cloud, Genesee, and Hamayan (2000), Lindholm-Leary (2001), Mora, Wink, and Wink (2001), and Thomas and Collier (2002), focus on the influence or effect of programs on the development of skills mostly in native Spanish speaking students, leaving the area of skills development for proficient English speaking students in dual language immersion programs virtually untapped. Thus, educational researchers have left a void in dual language program data and literature. The researcher believes this study will aid in filling the void in the limited way in which educational researchers have examined the research.

Research Questions

Research Question 1: What differences exist in the English reading skills between students in a dual language program and students who are not? HYPOTHESIS: Students in a dual language program will demonstrate greater positive change in English reading skills than students in an English only environment.

Research Question 2: To what extent is ethnicity (Latino, White, and Other Ethnicities) associated with differences in the English reading skills between students in a dual language program and students who are not?

Research Question 3: To what extent is gender associated with the differences in the English reading skills between students in a dual language program and students who are not?

Operational Definitions

For the purpose of this study, the definition of terms is as follows:

Dual language (education) program (DLP) – An educational program that emphasizes challenging standards in the core curriculum while enriching students' development in both their first and second language. These programs aim for full proficiency in two languages, an understanding and appreciation for the cultures associated with those languages, and high levels of achievement in all core academic domains (Lindholm, 2000).

English proficient students – Any student enrolled in the District who possessed sufficient verbal English language capability and resided in a home in which the English language was the primary spoken language.

English only instruction/environment (EOI) student – Any student enrolled in the District that was not receiving dual language education in the dual language program, English as a second language services, or special education services.

Spanish proficient students – Any student enrolled in the District who possessed sufficient verbal Spanish language capability and resided in a home in which the Spanish language was the primary spoken language.

Assumptions

It is assumed that the information provided by the Department of Literacy and English as a Second Language, the District, and its agents is valid and correct.

Limitations

This study is limited by the scope of student locale diversity as the population was limited to the students of the District and does not include students from the county, state, national, or international level.

This study is limited by the scope of student age and grade level diversity as the population was limited to the kindergarten, grade 1, and grade 2 students of the District and does not include grades required to take state assessments in the area of English language arts.

This study is limited by the information provided by the Department of Literacy and English as a Second Language, the District, and its agents.

This study is limited to the validity of the Developmental Reading Assessment – Second Edition (DRA2) scores as reported by the Department of Literacy and English as a Second Language, the District, and its agents.

This study is limited by the fact that DRA2 levels are not equal jumps, and need to be treated differently than most standard data points. For example: DRA2 level 8 is

not objectively twice as much "reading ability" as DRA2 level 4. Some jumps are small (i.e. from a DRA2 level 2 to a DRA2 level 3), while others are larger (i.e. from a DRA2 level 20 to a DRA2 level 24). As these levels are more nominal than numerical, levels have been nominally grouped into categories of "below grade level," "on grade level," and "above grade level."

This study is limited by the fact that the DRA2 is an assessment of relative measurement in which students may increase in acquired reading skill development as the year progresses, but may show a negative change in grade level performance based upon the grade level scale.

This study is limited by the fact that there is no designated grade level expectancy in the fall of kindergarten. Due to this, the negative change in performance may influence the interpretation of reading ability on the kindergarten level.

This study is limited by the fact that all self-contained and inclusion students with Individualized Education Plans, students who had received English as a Second Language services, and students who, in the student database, reflected having no teacher and no scores reported, (it is assumed by the District and the researcher that these students had moved out of the district), were omitted from this study.

This study is limited by the fact that it demonstrates a lack of power due to the relatively small numbers within the sample. Due to this, the estimate of the dual language impact may be unreliable.

This study is limited by the fact that the analysis of data in the crosstabulation of DRA2 scores by ethnicity demonstrates the sample size of Asian, Black, and Multiracial students were too few to independently produce cells that had expected frequencies of

five or larger which can lead to inaccurate results or interpretations. These three ethnic groups were combined into one cohesive group labeled "Other Ethnicities" in these sections of the discussion for this reason.

Delimitations

This study is delimited to two of the elementary schools of the District which are comprised of the kindergarten, grade 1, and grade 2 English only instruction students and dual language program students.

This study is delimited to the information provided by the Department of Literacy and English as a Second Language, the District, and its agents. No other schools will provide information for this study.

Chapter II

REVIEW OF LITERATURE

Pertinent literature related to bilingual education and dual language education was gathered using electronic and manual searches. While the literature related to bilingual education is moderately extensive, much of the literature in existence was well over 30 years old. Unless it was considered to be of immediate relevance to this work, older literature will not be referenced as they are imbedded within the more recent works cited within this study. Literature found by this researcher negating the findings of literature reviewed in this section has not proven to be research-based and will not be considered relevant to this study. The preponderance of recent research relating to dual language or bilingual programs, which will be fully discussed later in this chapter, focus on the influence or effect of programs on the development of skills mostly in native Spanish speaking students, leaving the area of skills development for proficient English speaking students in dual language immersion programs virtually untapped. The majority of research presenting disaggregated data has focused on later elementary and secondary education, and is not relevant to this study.

The most relevant ethnicity-based disaggregated findings presented the results of the second year of a 4-year longitudinal evaluation of a partial French immersion program in Cincinnati, Ohio in 1991. Holobow, Genesee, and Lambert compared the curricular progression of minority group (Black) students to majority group (White) students who had been the subject of virtually all evaluations of immersion to date. The English native language development, mathematic academic achievement, and French second language attainment of pilot groups of Black and White students who were in

grade 1, as well as those of a follow-up cohort of kindergarten students, were assessed. The results showed that performance differences in English and mathematics between subgroups of students did not depend on the program of instruction they were receiving. Furthermore, it was found that the Black students scored as well as the middle-class and White students on the French language tests (Holobow, Genesee, & Lambert, 1991). Educational researchers have left a void in dual language program data and literature. Rarely have researchers disaggregated by gender and ethnicity the quantitative research of early elementary English proficient dual language students' English reading development.

Historical and Political Perspectives of Bilingual Education

The United States of America has experienced an influx of immigrants to these shores in unprecedented numbers during the past one hundred sixty years. Most recently, the immigration of people who speak a language other than English has led to population shifts throughout the country (Lindholm-Leary, 2001). Historically, bilingualism has been simultaneously embraced and shunned in the United States. Although every citizen is entitled to free speech and expression as allowed by the First Amendment of the United States Constitution, this same document does not dictate an official language for our country (Carrera-Carrillo, 2004). The unified authority of this nation has been very triumphant in sponsoring English as the official language of the United States in the absence of any official language policy (Crawford, 1995). "Almost without exception, language minority education in the United States has been restricted to …serve the societal and educational aim of English mono-lingualism" (Figueroa, 2007, p. 49).

According to Trevino-Castillo (2001), "The perception of the general public is that English has been the official language of the United States since the early settlers arrived in the 1600s" (p. 12). It is noted, on the contrary, that in the year 1664, at least 18 different languages were spoken on Manhattan Island, not counting the Native American languages (Crawford, 1995). Trevino-Castillo (2001) argues that, "Linguistic diversity has been a fact of life on this continent and in its schools since before the founding of this country" (p. 12). By the mid-1800s, state governments had explicitly authorized instruction in French in Louisiana, in Spanish in New Mexico, and in a number of other languages in other jurisdictions (Feinberg & Morencia, 1998). Native Americans also offered instruction in their indigenous languages and in English. According to Crawford (2004), by 1850, the Cherokees had achieved a 90 percent literacy rate and used bilingual materials "...to such an extent that Oklahoma Cherokees had a higher English literacy level than the White populations of either Texas or Arkansas" (p. 92).

While the early history of the United States demonstrates an acceptance of cultural diversity in the wide-spread practice of instruction in languages other than English, the national perception of bilingualism became increasingly negative. The linguistic success of the Cherokee was resented and the national public sentiment to newly arrived immigrants of Italian, Jewish, and Slavic decent who were not able to speak English became heavily critical and negative. Freeman, Freeman, and Mercuri (2005) state that in 1906, "Congress passed the first federal language law requiring knowledge of English for naturalization. Proficiency in English began to be equated with political loyalty" (p. 19). By World War I, it became viewed as un-American to speak a foreign language other than English in public. By the 1930s, bilingual instruction "was

virtually eradicated throughout the United States" (Crawford, 2004, p.91). There was little, if any, interest of the United States government to provide bilingual instruction in public schools for the next 30 years (Freeman, Freeman, & Mercuri, 2005).

It was the 1959 revolution in Cuba that brought bilingual instruction back to the forefront of the educational landscape in the southern states of this nation. Professional Cuban refugees possessing wealth began to arrive in Florida, bringing with them high levels of education, skills, and deep pride in their native language and culture. According to Feinberg and Morenci (1998), the huge influx of Cuban refugees into the Miami, Florida area brought eighteen thousand Cuban students into the Miami Dade County Public Schools. Freeman, Freeman, and Mercuri (2005) reports that the Dade County School District was so "overwhelmed by the enrollment of more than three thousand non-English speaking students per year, [it] began recruiting experienced Cuban teachers" who were given special certification through the Miami Cuban Teacher Retraining Project (p. 21). The Coral Way Elementary School, a bi-ethnic and bilingual school, was established in 1965 with the aid of these teachers and grants from the federal government. By 1975, eight other schools of the same characteristics were established and bilingual curriculum was made available in an additional eighteen secondary schools.

In the 1960s, the focus of formalized bilingual education was brought to the forefront of our nation's education arena. Bilingual education under Title VII of the Bilingual Education Act of 1967 is defined as "the use of two languages, one of which is English, as mediums of instruction" (Santiago Santiago, 1978, p.34). The original objective of Title VII was to design innovative program models, so that states and local school districts could eventually become responsible for the continuation of said

programs (Carrera-Carrillo, 2003, p. 20). Since the inception of the legislation, the federal government has continued to be a consistent entity in the bilingual programs, playing a major role in their funding, design, and implementation (Lemberger, 1997).

The most fundamental case which had tremendous impact upon bilingual education was the 1974 case of *Lau v. Nichols*, a class action suit filed on behalf of 1,800 Chinese-American students who attended the San Francisco public schools in which English was the only language of instruction. None of the students were able to understand the delivered instruction due to the difference of language. The United States Supreme Court unanimously ruled in favor of the students stating they were being discriminated against and not being provided an equal educational opportunity. Although the *Lau v. Nichols* decision did not support any specific program or model, it did provide a strong incentive for the equal educational opportunity for limited English-speaking students. "*Lau* [*v. Nichols*] raised the nation's consciousness of the need for bilingual education, encouraged additional federal legislation, energized federal enforcement efforts…aided the passage of laws mandating bilingual education, and spawned more lawsuits" (Teitelbaum & Hiller, 1979, p. 21). The decision of *Lau v. Nichols* led to the passing of the Equal Educational Opportunity Act of 1974 by Congress. This Act extended the ruling of *Lau v. Nichols* to all public school districts and not merely those receiving federal financial assistance (Teitelbaum & Hiller, 1979). The *Lau v. Nichols* decision played a pivotal role in advancing the creation of bilingual programs nationwide.

Another pivotal case that directed the development of bilingual education according to Santiago Santiago (1978) was that of *Aspira v. Board of Education of the City of New York* (1973) which led to the Aspira Consent Decree of New York City.

ASPIRA was a Hispanic advocacy group which brought a class-action suit on behalf of 180, 000 Puerto Rican students whose language and learning needs were being neglected by the New York City (NYC) Board of Education. The Aspira Consent Decree mandates transitional bilingual programs for the Spanish-speaking students of NYC's Board of Education and establishes procedures for the identification of students, curriculum, assessment, the necessities to acquire qualified teachers, and provisions for appropriate parent notification procedures. The original decree authorized students to exit the program once they attained proficiency in the 21st percentile of the Language Assessment Battery and English Language Proficiency Test (Santiago Santiago, 1978). That percentile score required for exiting the program was raised in 1989 to the 41st percentile. It was believed by bilingual educators and advocates of the time that a score in the 21st percentile permitted students to exit the program without a sufficient enough language or second language underpinning (Lemberger, 1997).

Rationale for Bilingual Education

According to Cummins (1981), research-based theory in second language acquisition has strongly supported bilingual education. The author continues by hypothesizing that language proficiency could be organized into two groups according to the theory of language transferability, namely the categories of Basic Interpersonal Communicative Skills (BICS) and Cognitive Academic Language Proficiency (CALP). BICS is the first stage of language ability when a person can informally communicate in a second language, which might include asking for something and answering in a very basic sentence structure with limited vocabulary. CALP is the stage of language ability

necessary for literacy and cognitively – challenging content that would be found in a literature or technical textbook. Cummins asserts that when the students' first language is supported through classroom instruction, the students are given the opportunity to arrive at the CALP stage in their native language, providing a foundation for learning in a second language. Using the second language learners' first language in school is important because: (a) bilingual students develop vital background knowledge and concepts when they obtain intelligible input in their first language, aiding in their achievement academically later in English, (b) when students possess a well-developed primary language, the second language acquisition becomes more effortless, and (c) bilingual students develop an appreciation and intrinsically value their native language and culture and preserve essential family bonds. This lessens the potential for discord between school and home values (Cummins, 1981).

Researchers Peal and Lambert (as cited in Carrera-Carrillo, 2003) observed that exposure to two languages seemingly resulted in the mental flexibility, superiority in concept formation, and a more diversified set of mental abilities in French-English bilinguals. Cummins (1987) suggested that the underlying proficiency theory which states there is a common storage space and development of skills and knowledge in one language is not independent of the acquisition of information in a second language. Conversely, Carrera-Carrillo (2003) states that developing knowledge and proficiency skills in one language facilitates learning in a second language. Research according to Lindholm (1992) maintains that a bilingual who performs well in math in one language is highly likely to perform well in math in a second language, even after only one or two

years of schooling in the second language, once the student has the language proficiency skills for demonstrating that knowledge.

Research conducted during the past few decades establishes convincing evidence that bilingualism has a positive effect on cognitive processing. It is now generally accepted that bilinguals who have achieved a high level of proficiency and balance in their native language and target language outperform monolinguals on verbal and nonverbal measures of intelligence as well as demonstrate greater cognitive flexibility than their monolingual counterparts on tasks requiring complex problem-solving skills (Nanez & Padilla, 1995).

Among several program models used in bilingual education in the United States according to Thomas and Collier (1997) are:

1. Developmental Bilingual Education: Academic instruction is delivered half the day in the target language and the other half in the native language for grades kindergarten through 5 or kindergarten through 6. Ideally, this program is for grades kindergarten through twelve, but this model has rarely been implemented beyond the elementary school level in the United States

2. Transitional Bilingual Education: Academic instruction is delivered half the day in the target language and the other half in the native language, with gradual transition to all-target language instruction in 2 to 3 years. This is the model used more often in many bilingual programs.

3. Bilingual Immersion Education (also referred to as Dual Language Education): Academic instruction is delivered half the day in the target language and the other half in

the native language for grades kindergarten through twelve. Originally developed in Canada, it is often used for two-way bilingual education in the United States.

Dual language education, while different from bilingual education, is a bilingual immersion education enrichment program in which academic instruction is delivered half the day in the target language and the other half in the native language, or in a model alternating one day in the target language and the following in the native language, to elementary, middle, and secondary students and is often used for two-way bilingual education in the United States. Students in dual language enrichment programs, even though they all may be from the same native background, do not all begin the program with the same first language. Though some are native English speakers and some are not, all learn together in two languages and become competent in both, with biliteracy proficiency being the goal (Freeman, Freeman, & Mercuri, 2005). As previously stated, the remainder of this study will focus upon the latter bilingual educational model.

Dual Language Education

Dual language education programs as we know it today emerged from the feasible melding of several programs that began approximately 40-50 years ago. During the early 1960s influx of economically privileged Cuban refugees, the need for an effective program that would aid in the education of these immigrants effectively had spawned. The creation of a "two-way" program in the Dade County Public Schools in Miami, was implemented experimentally. Howard and Christian (2002) explain that between the opening of the Coral Way School in 1963 and the mid-1980s, the expansion of dual language programs was relatively slow. The increase in growth of the programs since

then is said to be due to the need for Americans to become multilingual in the growing global economy. In 2000, when then United States Secretary of Education Riley highlighted the dual language approach as the most effective way to teach English and encourage biliteracy, he expressed that the United States needed to invest in programs such as dual language because "in an international economy, knowledge – and knowledge of language – is power" (p. 4). According to Brecht and Ingold (1998), the importance of multilingualism in the United States is imperative:

> Because the United States interacts with virtually every nation in the world, and because United States society includes individuals and communities from many of those nations, the need for proficiency in their languages and for use in a social, economic, and geopolitical areas has never been higher. (p. 1)

More recently, dual language education programs are usually comprised of English dominant and target language dominant students who are purposefully integrated with the goals of (a) developing high levels of proficiency in their native language and in a target language; (b) performing at or above grade level in academic content areas in both languages; and (c) demonstrating positive cross-cultural attitudes, behaviors, and high levels of self-esteem (Christian, 1994; Lindholm-Leary, 2001; Valdes, 1997). Considerable research has pointed to dual language education as the preeminent way for native English speakers, as well as non-English speakers, to achieve biliteracy and high academic achievement, and research reports nationwide repeatedly credit dual language education for higher test scores (Christian, Howard, & Loeb, 2000; Lindholm-Leary, 2001; Thomas & Collier, 2002). According to researchers, integrative second language instruction is much more effective than approaches that teach second languages in

isolation (Genesee, 1987). Dual language programs are described as a type of enrichment education due to the fact that:

> Enriched educational programs are programs that emphasize challenging standards in the core curriculum domains while enriching students' development in both their first and second language. These programs aim for full proficiency in two languages, an understanding and appreciation of the cultures associated with those languages, and high levels of achievement in all core academic domains. (Cloud, Genesee, & Hamayan, 2000, p. 205)

The goals encompass academic, language, and social development equally without any one area receiving a higher level of importance over the others. One of the most outstanding aspects of dual language education programs is that it serves both native language students and target language students in the same classroom, and factors related to language stature and expectations for different linguistic groups are important for determining program outcomes (Mora, Wink, & Wink, 2001). According to Mora, Wink, and Wink (2001), a cornerstone of dual language education programs is to incorporate effective language teaching techniques. Language is used as the medium of instruction rather than it being the goal of instruction. The students learn language primarily through the content. Dual language programs share the same challenging academic and language development standards as basic kindergarten-12 education. Researchers purport that language is best developed within the content-based curriculum rather than as the object of instruction (Genesee, 1994). As a result, strategies that make instruction more comprehensible to target language students, such as multiple strategies, prompts, and picture clues, play a pivotal role in the acquisition of the target language.

Freeman, Freeman, and Mercuri (2005) describes what they call an "enriched immersion" program exemplified by the French immersion model in Canada in which middle-class English-speaking students attend school from kindergarten through sixth grade and study in both English and French. In this program, they are initially immersed solely in French and "...usually around grade 2, begin to develop literacy in their first language, English" (p. 11). Researchers suggest that as a result of this program, the children become both bilingual and biliterate by the end of sixth grade (Cloud, Genesee, & Hamayan, 2000). Freeman, Freeman, and Mercuri (2005) consolidated information on the types of bilingual programs that achieve additive language results according to Thomas and Collier (1997, 2002) and Cloud, Genesee, and Hamayan (2000) which is presented in Table 1.

In 2000, based on a review of research in which dual language programs in which students in dual language programs were compared with (a) English language learners in mainstream classes, (b) students in transitional bilingual education, (c) students in developmental bilingual education, and (d) native English-speaking students in dual language programs, and research in which there were no comparison groups, Krashen (2004) concluded, "Only a handful of studies exist, and they report generally positive but variable attainment in academic English among English learners....Thus a close look at the data show that two-way programs show promising results, but research has not yet demonstrated that they are the best possible program" (p. 13). While this statement demonstrates the author's belief that additional research in the field of dual language programs was necessary, Krashen did not consider studies such as Howard, Christian, and Genesee (2004) which focused on the reading and writing development of students in

Table 1

Consolidated Table of Additive Bilingual Programs

Program	Description	Academic Result
Enriched Immersion	Native English speakers are taught language through content instruction in a second language. English is introduced around grade 2.	Students acquire a second language and achieve the same levels of competence in academic subjects as peers taught all in English.
Maintenance	English language learners receive content instruction in both their native language and the target language for four to six years.	English language learners outperform students in English-only programs; students achieve above 50th percentile on standardized English reading tests by seventh grade.
Dual Language	English language learners and native English speakers learn language through content in	Students from both language groups outperform other

Program	Description	Academic Result
Dual Language	both English and the first language of the English learners.	bilingual students and achieve above the 50th percentile on standardized English reading tests by seventh grade.

eleven two-way schools in which the researchers found significant gains for third and fifth graders in Spanish and English writing and English reading. Howard, Christian, and Genesee (2004) conclude, "The fifth grade results are particularly encouraging, as they demonstrate that the majority of students received perfect or close to perfect scores on a grade-level assessment of English reading ability" (p. 21).

The District's Dual Language Program

According to the District's Parent Handbook, "Two Voices, One World/Dos Voces, Un Mundo" is the name adopted by the dual language program. This program was adopted by the District's Board of Education in December 2003 and initiated in September of 2004. The mission statement of the dual language program states:

> Creating a nurturing learning environment, where students become bilingual, bi-literate, multicultural, believing that all students can learn in and through two languages, setting high expectations for all students which will contribute to

> greater academic success, developing life-long learners, creative thinkers, and problem solvers! We are bilingual! [Brochure]

The document continues by stating that the goals of the dual language program are: (a) students will meet or exceed the New York State Standards; (b) students will develop proficiency in their native language; (c) students will develop proficiency in their target language; (d) academic performance for both groups of students will be at or above grade level; and (e) all students will demonstrate positive cross-cultural attitudes and behaviors that will help them to function in our global society. The mission statement and the program goals closely mirror the aforementioned goals of general dual language education programs (Christian, 1994; Lindholm-Leary, 2001; Valdes, 1997).

The District's dual language program has adopted the 50/50 dual language model of instruction. This model, according to District records, divides instructional time equally between English and Spanish in separate classroom setting. On a weekly basis, kindergarten through grade 5 students receive 50 percent of their curricular instruction in English and 50 percent in Spanish with the goal of the two languages being kept separate at all times. Students receive academic area lessons in either the native or target language in distinct locations on alternating days to guarantee an equal delivery of instruction in both languages. Instruction is delivered in side-by-side classrooms in which the teachers are in a close-partner relationship. Both teachers plan instruction together on a daily basis. For instance, instruction is delivered on Monday in the English classroom, and is continued on Tuesday in the Spanish classroom. The mornings are reserved for literacy instruction, while the afternoons are devoted to teaching all other content areas including math, science, and social studies.

Early Elementary Phonological Awareness

Decades of research proves that the early acquisition of reading knowledge for native English speaking students is a crucial factor for their future academic success. Phonological awareness is widely viewed to have a strong influence on word decoding skills as the students' reading career matures and this relationship has been examined in more than 20 empirical studies (Bryant, MacLean, Bradley, & Crossland, 1990; Snow, Burns, & Griffin, 1998; Wagner & Torgessen, 1987). Further studies show that kindergarten and grade 1 students who demonstrate strong phonological awareness tend to be better readers in later grades (Juel, Griffith, & Cough, 1986).

While evidence supports the direct relationship between strong phonological awareness and reading success, there has been some debate about how to exactly define phonological awareness. Two main points of dispute that arise out of a comprehensive review of phonological awareness by Calfee and Norman (1998) are: (a) confusion about the construct of phonological awareness and (b) the rate of difficulty of tasks. These researchers argue that though several studies had previously used tasks that purportedly measure phonological awareness, many had solely been used for those particular studies, never to be used again, limiting the understanding of what was being measured. Research has proven that phonological awareness is a "multidimensional construct" that encompasses complex cognitive functions based on correlations of particular tasks and cognitive complexity (Yopp, 1988). Adams (1990) further studied several phonological awareness assessments which ranged from lower level tasks that involve rhyming, to tasks which require more advance skills such as phoneme blending and segmenting. Students who possess an understanding that words are able to be subdivided into smaller,

nonsensical sounds that match to phonemes are capable of mastering the more complex tasks. The ability to master tasks such as segmenting and blending phonemes enable practitioners to make strong predictions of correlations to beginning reading mastery.

Research suggests that phonological awareness consists of layers of skills that gradually develop in a sequential manner. Adams (1990), Christensen (1997), and Kaminski and Good (1996) concluded that students' awareness of onset and rime precede other more cognitively rigorous tasks such as the ability to produce rhyme or segmentation. Goswami and Bryant (1990) purport early phonological awareness is necessary to the development of early reading, but more complex forms of phonological awareness such as segmentation are developed as a result of the onset of reading instruction. Research maintains the notion that if beginning readers are able to fuse several phonological awareness skills, word recognition will be more easily facilitated, which makes available cognitive capacity in order for the reader to focus on meaning and comprehension (Adams, 1990; National Institute of Child Health and Human Development, 2000). The International Reading Association (1998) asserts that phonological awareness involves the capacity to segment sounds used in speech which establishes a direct link to unlock the reading code and lead to reading mastery. Phonological awareness is viewed as a multidimensional scaffold of skills working in concert with other literacy constructs such as letter recognition, letter-sound recognition, directionality, sight word recognition and recall, and concepts about print to facilitate reading comprehension and reading success.

Early Elementary Reading Fluency

Reading fluency is considered to be one of the most accurate forecasters of future reading performance on standardized academic content assessments (Crawford, Tindal, & Steiber, 2001; Fuchs, Fuchs, & Maxwell, 1988). Adams (1990) purports that the ability to read fluently has been viewed as a prominent characteristic of a strong reader. The characteristic to which Adams referred is what Fuchs, Fuchs, Hosp, and Jenkins (2001) call "oral reading fluency":

> ...the oral translation of text with speed and accuracy...oral reading fluency represents a complicated, multifaceted performance that entails, for example, a reader's perceptual skill at automatically translating letters into coherent sound representations, utilizing those sound components into recognizable wholes and automatically accessing lexical representations, processing meaningful connections within and between sentences, relating text meaning to prior information, and making inferences to supply missing information. That is, as an individual translates text into spoken language, he or she quickly coordinates these skills in an obligatory and seemingly effortless manner, and because oral reading fluency reflects this complex orchestration, it can be used in an elegant and reliable way to characterize reading expertise. (p. 240)

Oral reading fluency gradually develops during the elementary years and, according to Fuchs and Deno (1991), can be indexed as words read correctly per minute so that scores reflect small, roughly equivalent intervals that allow practitioners to use the information in different ways. The researchers assert that performance levels between individuals can

be compared and gains in the number of words read correctly per minute can be used to monitor the development of reading competence within the individual.

Most importantly, research suggests that a typical progress monitor trajectory of oral reading demonstrates the greatest growth increments in the early elementary years, with less growth increments occurring through middle and secondary school years. This suggestion further stipulates that oral reading fluency should have a stronger relationship with reading comprehension in the early elementary years as opposed to the middle school years. It is presumed by this study's researcher that one can conclude that oral reading fluency may serve as an indicator of basic reading competence as opposed to an individual's literature analysis ability or new text information acquisition ability. Oral reading fluency is a direct measure of phonological segmentation, recoding (encoding) skill, and rapid sight word recognition (Fuchs, Fuchs, Hosp, & Jenkins, 2001). Oral reading fluency has further been viewed as a performance indicator of overall reading competence, including comprehension. When reading development and pre-reading knowledge is examined, reading fluency is considered a highly important factor, especially in the research in the field of reading difficulties. Automatic and effortless rates of processing information that allows the reallocation of attention is heavily emphasized in the more recent views on fluency in the last quarter of the 20th century. Models that emphasize automaticity (LaBerge & Samuels, 1974) derive several principals from information processing models according to Wolf and Katzir-Cohen (2001). Wolf and Katzir-Cohen suggested that in the gradual stages of reading development, fluency entails the gradual development of accurate and automatic execution of lower level components involving orthographic, phonological, lexical,

morphological, and syntactic skills. The development of efficiency in these basic facets of reading and word decoding enables the reader to allocate attention resources to higher level reading skills involved in comprehension.

Letter naming fluency was proven to be a strong predictor of grade 1 reading fluency (Stage, Sheppard, Davidson, & Browning, 2001). Letter sound fluency has also proven to be a strong predictor of sight word recognition (McBride-Chang, 1999; Stage, Abbott, Jenkins, & Berninger, 2000). Stage, Sheppard, Davidson, and Browning (2001) found letter name fluency to be a strong predictor of grade 1 oral reading fluency, and according to Adams (1990), this skill, coupled with letter sound fluency leads to a higher achievement in word recognition and spelling in the early grades. Students who demonstrate strong knowledge of letter names and letter sounds tend to be more fluent readers and tend to perform well on standardized academic content assessments. Researchers purport that the use of oral reading fluency as a measure of reading ability showed the strongest criterion-related validity with construct and concurrent validity of all measures sampled (Bradley-Klug, Shapiro, Lutz, & DuPaul, 1998; Hintze & Shapiro, 1997).

The Developmental Reading Assessment – Second Edition

The Developmental Reading Assessment – Second Edition (DRA2) (2009) by Pearson Education, Inc. is the primary tool used to assess kindergarten through eighth grade students' reading skills in order to inform future instruction in the District. The DRA2 is a diagnostic evaluative tool designed to be administered by classroom teachers to aid them in assessing students' independent and instructional reading levels and

identify students' strengths and weaknesses in relation to reading engagement, oral reading fluency, comprehension skills, and comprehension strategies. Originally authored in 1988 by Joetta M. Beaver and the Upper Arlington School District, the original DRA Kindergarten-3, was updated and expanded starting in 1998 and completely revised to become the DRA2, Kindergarten-3, and the original DRA 4-8, co-written by Joetta M. Beaver and Mark A Carter, Ph.D., was revised to create the DRA2, 4-8. Both of the revisions of the Second Editions occurred between 2004 and 2006 (Pearson Education, Inc., 2009). The DRA2 is designed to:

> ...measure how well students read fiction and nonfiction; monitor student growth and development on a variety of crucial skills and strategies that successful readers utilize; help teachers determine student needs and plan for timely instruction; prepare students to be successful at meeting today's classroom and teaching expectations; and support teachers and school districts in keeping parents and other stakeholders informed about their students' level of reading achievement." (Pearson Education, Inc., 2009, p. 4)

Development of the DRA2 was based on what educators and the extant research literature identified as being key characteristics and behaviors of good readers. According to Pearson Education, Inc. (2009), the assessment is based upon 12 theoretical premises which state that good readers: (a) choose reading materials to fulfill different purposes and to reflect their interests as well as read well-targeted text (text that is accessible at their level) with a high level of success and accuracy; (b) read for extended periods of time that are consistent with the purpose for reading; (c) preview a book

before reading in order to predict events, identify topics or themes, or make real-world connections by relating the content to their own experiences; (d) read aloud with fluency (i.e., quickly and smoothly with expression) for longer periods of time; (e) are aware of and use a variety of strategies to decode words and comprehend reading materials, including previewing text, self-questioning, paraphrasing, and note-taking; (f) read for meaning and understanding and are able to summarize text in their own words. Older readers should also be able to summarize what they need in writing; (g) read and communicate with others using both oral and written discourse; (h) can monitor and develop their reading skills; (i) can read, comprehend, and interpret text on a literal level; (j) can read, interpret text by making use of inferences, and make connections to personal experiences and existing knowledge; (k) validate their inferences, generalizations, connections, and judgments with information from the text, information from other sources, or personal experiences; and (l) reflect on what they read to determine its significance, to validate its authenticity, and to understand the author's intent (pp. 7-13).

The DRA2 is usually administered to students two to three times per year. The District measures kindergarten, grade 1, and grade 2 students' reading skills using the DRA2 once in the fall (usually September to early October), once in the spring (usually end-May to early June), and once mid-year (usually mid-January). Many districts that utilize the DRA2 use a pre- and post-test procedure for administering and reporting DRA2 results. The post-test is used as a way to monitor the progress of students' growth, or lack of, over time. DRA2 assessment administration usually takes less than 60 minutes and includes a mixture of one-on-one teacher-student time, independent student reading, and in some cases, student writing, and teacher analysis.

DRA2 test administration occurs in four stages. First, reading engagement is measured as the DRA2 begins with recording information about students' past and present reading by asking questions about who reads with or to them and what stories they like the most. Secondly, oral reading is measured when the teachers gather information by pre-selecting two to three books at or near the students' reading levels in which the students attempt to either follow the text pattern or read the text. While the students read aloud, the teachers time the students and record notes about their oral reading behaviors (e.g., phrasing, expression, punctuation, and miscues). Upon the students' completion of their oral reading attempts, teachers record the length of time in a "minutes: seconds" format. To identify students' reading rates, teachers use a guide that lists the reading times into categories of either Intervention, Instructional, Independent, or Advanced. Teachers then count the total number of miscues that are not self-corrected (e.g., substitutions, omissions, insertions, reversals, and repetitions) and find the total number of miscues to determine the students' accuracy percent and level. If students' scores fall in the Intervention or Instructional levels for either rate or accuracy, the assessment is stopped and a lower-level assessment is administered at another time.

Thirdly, comprehension and printed language concepts are measured when students attempt to demonstrate ability to point to words with a consistent one-to-one match and orally retell the story or important ideas. Comprehension describes students' ability to retell and understand the text, including the main ideas, key facts, sequence of events, details, key vocabulary, predictions about the story, interpretation of the story characters, events, or topics, and making connections with the text. Printed language concepts include directionality, one-to-one word correspondence, and use of words and

letters. Lastly, teacher analysis and scoring is conducted when the teachers analyze the information gathered during the students' oral reading and evaluate the students' retelling, summary, and comprehension responses.

Summary

The preponderance of recent research relating to dual language or bilingual programs such as that of Cummins (1981), Nanez and Padilla (1995), Christian, Howard, and Loeb (2000), Cloud, Genesee, and Hamayan (2000), Lindholm-Leary (2001), Mora, Wink, and Wink (2001), and Thomas and Collier (2002), focus on the influence or effect of programs on the development of skills mostly in native Spanish speaking students, leaving the area of skills development for proficient English speaking students in dual language immersion programs virtually untapped. The major focus of past research has not been oriented towards examining ethnicity based data on the early elementary level. The most relevant early elementary level, ethnicity-based disaggregated findings presented the results of a partial French immersion program in Cincinnati, Ohio in 1991. The results showed that performance differences in English and mathematics between subgroups of students did not depend on the program of instruction they were receiving. Furthermore, it was found that the Black students scored as well as the middle-class and White students on the French language tests (Holobow, Genesee, & Lambert, 1991). A limited way in which educational researchers have examined the research, particularly in quantitative research disaggregated by gender and ethnic differences of early elementary English proficient dual language students' English reading development, has led to a void in dual language program data and literature.

Bilingual education under Title VII of the Bilingual Education Act of 1967 defines the practice as the use of two languages, one of which is English, as mediums of instruction. The original intent of the Title VII was to design innovative program models, so that states and local school districts could eventually become responsible for the continuation of said programs. The most fundamental case which had tremendous impact upon bilingual education was the case of *Lau v. Nichols* (1974). In this case, the United States Supreme Court unanimously ruled in favor of Chinese students that they were being discriminated against and not being provided an equal educational opportunity in the public school environment. The decision of *Lau v. Nichols* later led to the passing of the Equal Educational Opportunity Act of 1974 which extended the ruling of *Lau v. Nichols* to all public school districts. The *Lau v. Nichols* decision was important in fostering the creation of bilingual programs.

Research-based theory in second language acquisition has strongly supported bilingual education (Cummins, 1981). The research of Peal and Lambert (as cited by Carrera-Carrillo, 2003) observed that exposure to two languages seemingly resulted in the mental flexibility, superiority in concept formation, and a more diversified set of mental abilities in bilinguals. Additional research provides convincing evidence bilingualism has a positive effect on cognitive processing and it is now accepted that bilinguals who have achieved a high level of proficiency in their native language and target language outperform monolinguals verbally and cognitively (Nanez & Padilla, 1995).

Dual language education, while different from bilingual education, is a bilingual immersion education program in which academic instruction is delivered half the day in

the target language and the other half in the native language, or in a model alternating one day in the target language and the following in the native language, to elementary, middle, and secondary students and is often used for two-way bilingual education in the U. S. One of the most outstanding aspects of dual language education programs is that it serves both native language students and target language students in the same classroom. A cornerstone of dual language education programs is to incorporate effective language teaching techniques (Mora, Wink, & Wink, 2001). Language is used as the medium of instruction rather than it being the goal of instruction. While there is a general consensus of positive results from this type of educational program, researchers are in agreement that more research must to be conducted in order to validate these hypotheses (Freeman, Freeman, & Mercuri, 2005; Howard, Sugarman, & Christian, 2003; Krashen, 2004).

The District's dual language program has adopted the 50/50 dual language model which divides instructional time equally between English and Spanish. On a daily basis, kindergarten through grade 5 students receive 50 percent of their curricular instruction in English and 50 percent in Spanish where instruction is delivered in adjacent classrooms where students receive academic area lessons in each language in distinct locations. The mornings are reserved for literacy instruction in which the students are taught in their native language and their target language on alternating days.

Decades of research proves that the early acquisition of reading knowledge for native English speaking students is a crucial factor for their future academic success. Phonological awareness is widely viewed to have a strong influence on word decoding skills as the students' reading career matures. Research suggests that phonological awareness consists of layers of skills that gradually develop in a sequential manner. The

ability to master tasks such as segmenting and blending phonemes enable practitioners to make strong predictions of correlations to beginning reading mastery. Phonological awareness is viewed as a multidimensional scaffold of skills working in concert with other literacy constructs such as letter recognition, letter-sound recognition, directionality, sight word recognition and recall, and concepts about print to facilitate reading comprehension and reading success.

Reading fluency is considered to be one of the most accurate forecasters of future reading performance on standardized academic content assessments (Crawford, Tindal, & Steiber, 2001; Fuchs, Fuchs, & Maxwell, 1988). Adams (1990) suggests that the ability to read fluently has been viewed as a prominent characteristic of a strong reader known as oral reading fluency. Research suggests that a typical progress monitor trajectory of oral reading demonstrates the greatest growth increments in the early elementary years and has further been viewed as a performance indicator of overall reading competence, including comprehension. Students who demonstrate strong knowledge of letter names and letter sounds tend to be more fluent readers and tend to perform well on standardized academic content assessments and researchers purport that the use of oral reading fluency as a measure of reading ability showed the strongest validity of all measures (Bradley-Klug, Shapiro, Lutz, & DuPaul, 1998; Hintze & Shapiro, 1997).

The DRA2 is the primary tool used to assess students' reading skills in the District. The DRA2 is a diagnostic evaluative tool designed to identify students' strengths and weaknesses in relation to reading engagement, oral reading fluency, comprehension skills, and comprehension strategies. Development of the DRA2 was based on what educators and the extant research literature identified as being key

characteristics and behaviors of good readers. The District measures kindergarten, grade 1, and grade 2 students' reading skills using the DRA2 three times a year, once in the fall, once in the spring, and once mid-year. DRA2 test administration occurs in four stages: (a) reading engagement is measured, (b) oral reading (e.g., phrasing, expression, punctuation, and miscues) is measured, (c) comprehension (e.g., ability to retell and understand the text) and printed language concepts (e.g., directionality, one-to-one word correspondence, and use of words and letters) are measured, and (d) teacher analysis and scoring is conducted.

Chapter III

METHODOLOGY

Research Design

This research study is inductive and quantitative in nature. The performance of English proficient students who participated in an English only environment and English proficient students who participated in a dual language program in kindergarten through grade 2 was analyzed. The students were placed into one of three cohorts based upon the year and grade level in which they attended school. Cohort 1 students were studied for three academic years, analyzing their DRA2 performance measures in kindergarten in 2007-2008, grade 1 in 2008-2009, and grade 2 in 2009-2010. Cohort 2 students were studied for two academic years, analyzing their DRA2 performance measures in kindergarten in 2008-2009 and grade 1 in 2009-2010. The final cohort of students, Cohort 3, was studied for one academic year, analyzing their performance measures in kindergarten in 2009-2010.

The study uses a quasi randomized design, utilizing a systematic random sampling technique in which pre and post test measures of students' performance on the Developmental Reading Assessment – Second Edition were analyzed. The DRA2 levels are not equal jumps, and needed to be treated differently than most standard data points. For example: DRA2 level 8 is not objectively twice as much "reading" as DRA2 level 4. Some jumps are small (i.e. from a DRA2 level 2 to a DRA2 level 3), while others are larger (i.e. from a DRA2 level 20 to a DRA2 level 24). As these levels are more nominal than numerical, levels were nominally grouped into three categories based upon the scale of scores provided by the DRA2: (a) below grade level, (b) on grade level, and (c) above

grade level. The scores were compared using the statistical technique of Pearson Layered Chi-Square (χ^2) Contingency Test of Independence Analysis to determine the relationship between the pre- and post-test scores of the students. Table 2 presents the research information in a matrix design.

Population

Both the dual language program and the English only instruction groups reflect a comparable amount of male and female students as well as a comparable racial/ethnic representation per grade level. Cohort 1 students were studied for three academic years, reflecting students in kindergarten in 2007-2008, grade 1 in 2008-2009, and grade 2 in 2009-2010. Cohort 2 students were studied for two academic years, reflecting students in kindergarten in 2008-2009 and grade 1 in 2009-2010. The final cohort of students, Cohort 3, was studied for one academic year, reflecting students in kindergarten in 2009-2010.

All research questions focused on the population source of students enrolled in the dual language program in kindergarten through grade 2 and randomly selected English only environment students in the same grades. With respect to Research Questions 1 through 3, the data source was the District's student information database of all academic records and DRA 2 pre and post data for academic years 2007-2010.

Sample

During the 2007-2010 academic years, only students who participated in the dual language program for one full year if in kindergarten, two full years if in grade 1, or three full years if in grade 2 were considered for this study. A matching group of

Table 2

Research Matrix				
Research Question	*Population Sample / Data Source*	*Instrumentation*	*Data Collection Technique*	*Data Analysis*
What differences exist in the English reading skills between students in a dual language program and students who are not?	Systematically quasi random sampled students in kindergarten, grade 1 and grade 2 in 2007-2008, kindergarten and grade 1 in 2008-2009, and kindergarten in 2009-2010.	A Chi-Square analysis to determine the relationship between the pre-post test scores of English only instruction students and students who participated in dual language program in kindergarten through grade 2.	Retrieval and analysis of DRA2 pre and post test scores for randomly selected English only instruction population and dual language program students in kindergarten through grade 2.	Quantitative Chi-Square analysis cross-sectional design.
To what extent is ethnicity (Latino, White, and Other Ethnicities) associated with differences in the English reading skills between students in a dual language program and students who are not?	Systematically quasi random sampled students in kindergarten, grade 1 and grade 2 in 2007-2008, kindergarten and grade 1 in 2008-2009, and kindergarten in 2009-2010.	A Chi-Square analysis to determine the relationship between the pre-post test scores of English only instruction students and students who participated in dual language program in kindergarten through grade 2.	Retrieval and analysis of DRA2 pre and post test scores for randomly selected English only instruction population and dual language program students in kindergarten through grade 2.	Quantitative Chi-Square analysis cross-sectional design.
To what extent is gender associated with the differences in the English reading skills between students in a dual language program and students who are not?	Systematically quasi random sampled students in kindergarten, grade 1 and grade 2 in 2007-2008, kindergarten and grade 1 in 2008-2009, and kindergarten in 2009-2010.	A Chi-Square analysis to determine the relationship between the pre-post test scores of English only instruction students and students who participated in dual language program in kindergarten through grade 2.	Retrieval and analysis of DRA2 pre and post test scores for randomly selected English only instruction population and dual language program students in kindergarten through grade 2.	Quantitative Chi-Square analysis cross-sectional design.

randomly selected English only instruction students was chosen as the comparative group. Only students who were enrolled in the district for full-year intervals in kindergarten through grade 2 were considered for the random English only environment population pool.

The researcher selected an equal number of students from the dual language program and from the English only environment for each grade level in each year. Both the dual language program and the English only environment groups reflect a comparable amount of male and female students as well as a comparable racial/ethnic representation per grade level. Students from the English only environment were selected for the sample based on a systematic random sample technique. Of the English only environment students in each grade level with valid fall and spring DRA2 scores, every third student was eliminated from the data pool. The remaining students comprised the sample population for each grade.

During the academic year 2007-2008, 199 kindergarten students had valid fall and spring DRA2 scores and from these, a total of 112 students with valid scores were analyzed. In 2008-2009, 253 kindergarten students had valid fall and spring scores from whom, a total of 118 students were analyzed; and 247 grade 1 students had valid fall and spring scores from whom, 108 students were analyzed. Finally, in 2009-2010, 234 kindergarten students had valid fall and spring scores from whom, 120 students were analyzed; 219 grade 1 students had valid fall and spring scores from whom, 112 students were analyzed; and 106 grade 2 students had valid fall and spring scores from whom, 68 students were analyzed.

Cohort 1 provided data for three academic years and was comprised of 112 students in kindergarten in 2007-2008, 108 grade 1 students in 2008-2009, and 68 grade 2 students in 2009-2010. Cohort 2 provided data for two academic years and was comprised of 118 students in kindergarten in 2008-2009 and 112 grade 1 students in 2009-2010. The final cohort of students, Cohort 3, provided data for one academic year and was comprised of 120 students in kindergarten in 2009-2010. The sample of students for each cohort is presented in Table 3.

Instrumentation

In regards to instrumentation, Research Questions 1, 2, and 3 utilized progress monitoring tables which charted the DRA2 fall scores and the spring scores of randomly selected students in the English only environment and students in the dual language program. The DRA2 assesses the independent reading level, most specifically the reading engagement, oral reading fluency, and comprehension skills and strategies of students in kindergarten through grade 8. It aids in the identification of students' reading strengths and weaknesses through personalized student assessment so that instruction can be individualized to the needs of the learner. The statistical techniques used were Pearson Layered Chi-Square (χ^2) Contingency Tests of Independence Analysis.

DRA2 scores were acquired from the District's student information database named Infinite Campus. This database houses student information such as demographics, home residence information, report cards, and all assessment scores.

Table 3

Population Sample of Students by Cohort

	Grade		
Cohort	Kindergarten	Grade 1	Grade 2
1	2007-2008 (112)	2008-2009 (108)	2009-2010 (68)
2	2008-2009 (118)	2009-2010 (112)	
3	2009-2010 (120)		

Numbers in parentheses denote the population sample amount (*n*) for each group.

Reliability of the DRA2

Triangulation of the multiple forms of reliability analysis that were conducted shows that the DRA2 is a reliable measure in that it produces stable, consistent results over time, different raters, or different samples of work or content. Specifically, it demonstrates moderate to high internal consistency reliability, parallel equivalency reliability, test-retest reliability, and inter-rater reliability. (Pearson Education, Inc., 2009, p. 34)

Validity of the DRA2

The findings presented on content-related validity, criterion-related validity, and construct validity provide support for the validity of the DRA2. Specifically, the data show that the DRA2 subtests measure those constructs they were designed to measure: oral fluency and reading comprehension…represent unique dimensions of reading…results also show that these two subtests are

> correlated with one another at a moderate [level of significance]...results indicate that fluency and reading comprehension measures are developmental in nature, as demonstrated by the strong correlations with age...the results presented indicate that the DRA2 is a valid measure that can accurately measure students' oral reading fluency and comprehension level. (Pearson Education, Inc, 2009, p. 46)

Data Collection Technique

The researcher retrieved kindergarten through grade 2 fall and spring DRA2 test scores from the District's student information database system for questions 1 through 3.

Data Analysis

For Research Questions 1, 2, and 3, the researcher compiled and analyzed the fall and spring DRA2 test scores for the randomly selected English only environment students and the students enrolled in the dual language program using Pearson Layered Chi-Square (χ^2) Contingency Tests of Independence Analysis. The DRA2 is a challenging measure to use for analysis due to the fact that it does not offer a norm-referenced measurement. The DRA2 is an assessment of relative measurement in which students may increase in acquired reading skill development as the year progresses, but may show a decrease in grade level performance based upon the grade level scale. The DRA2 does not designate grade level expectancy in the fall of kindergarten. Due to this, the negative change in performance may have influenced the interpretation of reading ability on the kindergarten level.

The analysis of data demonstrated the sample size of Asian, Black, and Multiracial students were often too few to independently produce cells that had expected frequencies of 5 or larger which could have led to inaccurate results or interpretations. These three ethnic groups were combined into one cohesive group labeled "Other Ethnicities" in these discussions for this reason. Ethnicity and gender were treated as moderating variables that may have influence the effects of dual language on student outcomes. Additionally, the examination demonstrated a lack of power due to the relatively small numbers within the sample. Due to this, the estimate of the dual language impact may be unreliable.

Chapter IV

ANALYSIS OF THE DATA AND FINDINGS

Introduction

This research study examines the influence of dual language education on the development of literacy skills in proficient English speaking students in kindergarten, grade 1, and grade 2. It is intended that this study be used by districts to promote the benefits of an enriched immersion program to students based on the hypothesis that the program improves student English language literacy skills. Due to the increased demand of language acquisition opportunities through immersion enrichment programs by school districts, the study of dual language programs and their influence upon the academic achievement of the students enrolled is vital to the preservation and future development of full immersion dual language programs. It is the researcher's intent that this study will be significant for use by principals, central office school district leaders, and superintendents in the ongoing decision making process surrounding the adoption of programs that may produce better student outcomes due to the current accountability climate resulting from the No Child Left Behind Act of 2001 and the American Recovery and Reinvestment Act of 2009's Race to the Top Fund.

Rarely have researchers disaggregated by gender and ethnicity the data of early elementary English proficient dual language students' English reading development. The major focus of past research has not been oriented towards examining ethnicity based data on the early elementary level. The most relevant ethnicity-based disaggregated findings presented the results of the second year of a 4-year longitudinal evaluation of a partial French immersion program in Cincinnati, Ohio in 1991. The researchers in this

study compared the curricular progression of minority group (Black) students to majority group (White) students. The English native language development, mathematic academic achievement, and French second language attainment of pilot groups of Black and White students who were in grade 1, as well as those of a follow-up cohort of kindergarten students, were assessed. The results showed that performance differences in English and mathematics between subgroups of students did not depend on the program of instruction they were receiving. Furthermore, it was found that the Black students scored as well as the middle-class and White students on the French language tests.

Research Questions

The research questions guiding this study are as follows:

Research Question 1: What differences exist in the English reading skills between students in a dual language program and students who are not? HYPOTHESIS: Students in a dual language program will demonstrate greater positive change in English reading skills than students in an English only environment.

Research Question 2: To what extent is ethnicity (Latino, White, and Other Ethnicities) associated with differences in the English reading skills between students in a dual language program and students who are not?

Research Question 3: To what extent is gender associated with the differences in the English reading skills between students in a dual language program and students who are not?

Design of the Study

This study is based on a quasi randomized design which compared a systematically random sample of the general education population and a systematically random sample of dual language population during the academic years 2007-2010. The valid fall and spring DRA2 scores of all students in the study population were entered into the PASW 18.0 software package. Presented are the crosstabulations of students' gender, program enrollment (program), ethnicity, and DRA2 data for each grade level by cohorts of students (Cohort 1: kindergarten in 07-08, grade 1 in 08-09, and grade 2 in 09-10; Cohort 2: kindergarten in 08-09 and grade 1 in 09-10; and Cohort 3: kindergarten in 09-10). Research question 1 investigated the relationship between grade level performance (below, on, or above) and the fall and spring DRA2 scores of the participants by grade level for each cohort separately. The analysis was further refined by examining performance by ethnicity and gender. Research question 2 investigated the relationship between grade level performance (below, on, or above) and the fall and spring scores of the participants by ethnicity. Research question 3 investigated the relationship between grade level performance and the fall and spring scores of the participants by gender.

Structure of the Chapter

This chapter is structured by presenting the data and the findings for each of the three cohorts. The data and findings of the three research questions are discussed in sections under the subheading for each grade level within a cohort (i.e. Cohort 1: kindergarten in 07-08, grade 1 in 08-09, and grade 2 in 09-10). The first analysis in each

section is the presentation of demographic data that provides for the reader a disaggregated view of the grade level population by program, ethnicity, and gender. The second set of analyses attempts to answer the first research question through an examination of the DRA2 performance in the fall and spring, the Chi-Square analysis of the data, and the findings for the grade level. The third set of analyses attempts to answer the second research question that focuses on differences in performance that are associated with ethnicity. Lastly, the fourth set of analyses attempts to answer the third research question by examining gender differences in outcomes. The chapter concludes with a summary of the chapter and the findings within.

Results for Cohort 1

When examining Cohort 1, 552 students had valid fall and spring DRA2 scores and from these, a total of 288 students with valid scores were included in the analysis (N = 288). Baseline equivalence testing was done to determine whether there were significant differences between the two groups of students based on gender and ethnicity. Table 4 provides a summary of the results.

For Cohort 1, 50% of the students were dual language students and 50% were English only environment students. For the total sample, 59.4% of the students were female and 40.6% were male. When these numbers were examined by program, 50.4% of the English only environment students were female and 49.6% of the dual language students were female, while 49.6% of the English only environment students were male and 50.4% of the dual language students were male.

With respect to ethnicity in the overall Cohort 1 sample, 19.4% of the students

Table 4

Crosstabulation of Cohort 1 Gender, Ethnicity, and Program (N = 288)

	Program		
Group	EOI	DLP	Total
Female	86	85	171
Male	58	59	117
Other Ethnicities	26	30	56
Latino	62	54	116
White	56	60	116

χ^2 Results of Cohort 1 Baseline Equivalency Testing by Trait

Trait	*N*	Pearson Value	*Df*	Asymp. Sig.
Gender	288	0.14[a]	1	.904
Ethnicity	288	0.98[b]	2	.614

p<.005

a. 0 cells (0.0%) had expected count less than 5. The minimum expected count was 58.50.

b. 0 cells (0.0%) had expected count less than 5. The minimum expected count was 28.00.

were Other Ethnicity, 40.3% were Latino, and 40.3% were White. When these numbers were examined by program, 9.0% of the English only environment and 10.4% of the dual language students were Other Ethnicity, 21.5% of the English only environment students and 18.8% of the dual language program students were Latino, and 19.4% of the English only environment students and 20.8% of the dual language program students were White.

When gender and status were compared, the results of the χ^2 contingency test were not significant, χ^2 (df = 1, n = 288) = 0.14, p = .904. These results indicate that there was

not a significant difference in gender baseline equivalency for Cohort 1. With respect to ethnicity and status being compared Cohort 1 students, the results of the χ^2 contingency test were not significant, χ^2 (df = 2, n = 288) = 0.98, p = .614. These results indicate that there was not a significant difference in ethnicity baseline equivalency for this cohort.

2007-2008 Kindergarten

During this academic year, 199 kindergarten students had valid fall and spring DRA2 scores and from these, a total of 112 kindergarten students with valid scores were included in the analysis (N = 112). Table 5 provides a summary of the results.

In 07-08, 50% of the kindergarten students were dual language students and 50% were English only environment students. For the total sample, 58.9% of the students were female and 41.1% were male. When these numbers were examined by program, 62.5% of the English only environment students were female and 55.4% of the dual language students were female, while 37.5% of the English only environment students were male and 44.6% of the dual language students were male.

With respect to ethnicity in the overall sample, 5.4% of the students were Asian, 14.3% were Black, 39.3% were Latino, 1.8% were Multiracial, and 39.3% were White. When these numbers were examined by program, 3.6% of the English only environment and 7.1% of the dual language students were Asian, 12.5% of the English only environment and 16.1% of the dual language students were Black, 41.1% of the English only environment students and 37.5% of the dual language program students were Latino, 1.8% of the English only environment students and 1.8% of the dual language program students were Multiracial, and 41.1% of the English only environment students and

Table 5

Crosstabulation of 07-08 Kindergarten Gender, Ethnicity, and Program (N = 112)

	Program		
Group	EOI	DLP	Total
Female	35	31	66
Male	21	25	46
Asian	2	4	6
Black	7	9	16
Latino	23	21	44
Multiracial	1	1	2
White	23	21	44

37.5% of the dual language program students were White.

Performance of the total sample.

An analysis of performance was examined for the total 07-08 kindergarten sample. Table 6 provides a summary of the results. Of the 112 kindergarten students, 73.2% performed on grade level and 26.8% performed above grade level in the fall. For this group on the spring administration, 19.6% performed below grade level, 50.0% performed on grade level, and 30.4% performed above grade level. The results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $N = 112$) = 42.82, $p = .000$. These results indicate that there was a significant negative change in the overall reading ability of

Table 6

Crosstabulation of 07-08 Kindergarten Spring and Fall DRA2 Performance by Grade

DRA2 Score	Fall		
Spring	On	Above	Total
Below	22	0	22
On	49	7	56
Above	11	23	34
Total	82	30	112

χ^2 Results of 07-08 Kindergarten Spring and Fall DRA2 Performance by Grade

N	Pearson Value	*Df*	Asymp. Sig.
112	42.82	2	.000

p<.005
0 cells (0.0%) had expected count less than 5. The minimum expected count was 5.89.

students in kindergarten in 2007-2008. Overall, proportionately fewer students were on or above grade level at the end of kindergarten as opposed to the beginning.

Performance of the total sample by ethnicity.

An analysis of performance was examined by ethnicity and program. Table 7 provides a summary of these results. When the spring and fall 07-08 kindergarten scores were compared for Other Ethnicity students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 14$) = 8.77, $p = .012$. These results indicate that there was a significant negative change in the overall reading ability of Other Ethnicity dual language program students. Overall, proportionately fewer Other

Ethnicity students in the dual language program performed on or above grade level at the end of kindergarten as opposed to in the beginning in 07-08. When spring and fall 07-08 kindergarten scores were compared for Other Ethnicity students in the English only environment, the results of the χ^2 contingency test were significant, χ^2 ($df = 1$, $n = 10$) = 6.67, $p = .010$. These results indicate that there was a significant positive change in the overall reading ability of Other Ethnicity English only environment students. Overall, proportionately more Other Ethnicity students in the English only environment performed at a higher grade level at the end of kindergarten as opposed to in the beginning in 07-08.

With respect to Latino students in the dual language program, when spring and fall 07-08 kindergarten scores were compared, the results of the χ^2 contingency test were not significant, χ^2 ($df = 1$, $n = 21$) = 6.46, $p = .421$. These results indicate that there was not a significant change in the overall reading ability of Latino dual language program students. When spring and fall 07-08 kindergarten scores were compared for Latino students in the English only instruction, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 23$) = 9.08, $p = .011$. These results indicate that there was a significant negative change in the overall reading ability of Latino English only environment students. Overall, proportionately fewer Latino students in the English only environment performed on or above grade level at the end of kindergarten as opposed to in the beginning in 07-08.

Additionally, when spring and fall 07-08 kindergarten scores were compared for White students in the dual language program, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 21$) = 5.25, $p = .072$. These results indicate that there was

Table 7

χ^2 Results of 07-08 Kindergarten Spring and Fall DRA2 Performance by Ethnicity (N = 112)

Group	# Valid	Pearson Value	*Df*	Asymp. Sig.
Other Ethnicities				
EOI	10	6.67[a]	1	.010
DLP	14	8.77[b]	2	.012
Latino				
EOI	23	9.08[c]	2	.011
DLP	21	0.65[d]	1	.421
White				
EOI	23	4.39[e]	2	.111
DLP	21	5.25[f]	2	.072

p<.05

a. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.52.

b. 2 cells (50.0%) had expected count less than 5. The minimum expected count was 0.38.

c. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.52.

d. cells (50.0%) had expected count less than 5. The minimum expected count was 0.38.

e. cells (66.7%) had expected count less than 5. The minimum expected count was 0.96.

f. 5 cells (83.3%) had expected count less than 5. The minimum expected count was 0.43.

not a significant change in the overall reading ability of White dual language program students. With respect to the spring and fall 07-08 kindergarten scores being compared for White students in the English only environment, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 23$) = 4.39, $p = .111$. These results indicate that there

was not a significant change in the overall reading ability of White English only environment students.

Performance of the total sample by gender.

An analysis of performance was examined by gender and program. Table 8 provides a summary of these results. When the spring and fall 07-08 kindergarten scores were compared for female students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 31$) = 11.85, $p = .003$. These results indicate that there was a significant negative change in the overall reading ability of female dual language program students. Overall, proportionately fewer female students in the dual language program performed on or above grade level at the end of kindergarten as opposed to in the beginning in 07-08. A similar analysis of students in the English only environment setting was conducted. The results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 35$) = 12.11, $p = .002$. These results indicate that there was a significant negative change in the overall reading ability of female English only environment students. Overall, proportionately fewer female students in the English only environment performed on or above grade level at the end of kindergarten as opposed to in the beginning in 07-08.

With respect to male students in the dual language program, when spring and fall 07-08 kindergarten scores were compared, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 25$) = 11.36, $p = .003$. These results indicate that there was a significant negative change in the overall reading ability of male dual language program students. Overall, proportionately fewer male students in the dual language program performed on or above grade level at the end of kindergarten as opposed to in the

Table 8

χ^2 Results of 07-08 Kindergarten Spring and Fall DRA2 Performance by Gender (N = 112)

Group	# Valid	Pearson Value	*Df*	Asymp. Sig.
Female				
EOI	35	12.11[a]	2	.002
DLP	31	11.85[b]	2	.003
Male				
EOI	21	7.70[c]	2	.021
DLP	25	11.36[d]	2	.003

p<.05

a. 3 cells (50.0%) had expected count less than 5. The minimum expected count was 1.11.

b. 5 cells (83.3%) had expected count less than 5. The minimum expected count was 0.65.

c. 5 cells (83.3%) had expected count less than 5. The minimum expected count was 0.76.

d. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.40.

beginning in 07-08. A similar analysis of male students in the English only environment setting was conducted. The results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 21$) = 7.70, $p = .021$. These results indicate there was a significant negative change in the overall reading ability of male English only environment students. Overall, proportionately fewer male students in the English only environment setting performed on or above grade level at the end of kindergarten as opposed to in the beginning in 07-08.

First Follow Up of 2007-2008 Kindergarten: 2008-2009 Grade 1

During the 08-09 academic year, 247 grade 1 students had valid fall and spring DRA2 scores and from these, a total of 108 grade 1 students with valid scores were included in the analysis ($N = 108$). Table 9 provides a summary of the results.

In 08-09, 50% of the grade 1 students were dual language students and 50% were English only environment students. For the total sample, 59.3% of the students were female and 40.7% were male. When these numbers were examined by program, 57.4% of the English only environment students were female and 61.1% of the dual language program students were female, while 42.6% of the English only environment students were male and 38.9% of the dual language program students were male.

With respect to ethnicity in the overall sample, 4.6% of the students were Asian, 13.9% were Black, 38.9% were Latino, 0.9% was Multiracial, and 41.7% were White. When these numbers were examined by program, 7.4% of the English only environment and 1.9% of the dual language students was Asian, 11.1% of the English only environment and 16.7% of the dual language students were Black, 44.4% of the English only environment and 33.3% of the dual language students were Latino, 0.0% of the English only environment and 1.9% of the dual language program students were Multiracial, and 37.0% of the English only environment and 46.3% of the dual language program students were White.

Performance of the total sample.

An analysis of performance was examined for the total 08-09 grade 1 sample.

Table 9

Crosstabulation of 08-09 Grade 1 Gender, Ethnicity, and Program (N = 108)

	Program		
Group	EOI	DLP	Total
Female	31	33	64
Male	23	21	44
Asian	4	1	5
Black	6	9	15
Latino	24	18	42
Multiracial	0	1	1
White	20	25	45

Table 10 provides a summary of these results. Of the 108 grade 1 students, 46.3%performed below grade level, 7.4% performed on grade level, and 46.3% performed above grade level in the fall. For this group on the spring administration, 27.8% performed below grade level, 43.5% performed on grade level, and 28.7% performed above grade. The results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $N = 108$) = 62.41, $p = .000$. These results indicate that there was a significant positive change in the overall reading ability of students in grade 1 in 2008-2009. Overall, proportionately more students were on or above grade level at the end of grade 1 as opposed to the beginning.

Table 10

Crosstabulation of 08-09 Grade 1 Spring and Fall DRA2 Performance by Grade

DRA2 Score	Fall			
Spring	Below	On	Above	Total
Below	30	0	0	30
On	19	6	22	47
Above	1	2	28	31
Total	50	8	50	108

χ^2 Results of 08-09 Grade 1 Spring and Fall DRA2 Performance by Grade

N	Pearson Value	*Df*	Asymp. Sig.
108	62.41	4	.000

$p<.005$

3 cells (33.3%) had expected count less than 5. The minimum expected count was 2.22.

Performance of the total sample by ethnicity.

An analysis of performance was examined by ethnicity and program. Table 11 provides a summary of these results. When the spring and fall 08-09 grade 1 scores were compared for Other Ethnicity students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 11$) = 12.10, $p = .017$. These results indicate that there was a significant positive change in the overall reading ability of Other Ethnicity dual language program students. Overall, proportionately more Other Ethnicity students in the dual language program performed on or above grade level at the end of grade 1 as opposed to in the beginning in 08-09. When spring and fall 08-09 grade 1

scores were compared for Other Ethnicity students in the English only environment, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 10$) = 10.00, $p = .007$. These results indicate that there was a significant positive change in the overall reading ability of Other Ethnicity English only environment students. Overall, proportionately more Other Ethnicity students in the English only environment performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 08-09.

With respect to Latino students in the dual language program, when spring and fall 08-09 grade 1 scores were compared, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 18$) = 6.43, $p = .040$. These results indicate that there was a significant positive change in the overall reading ability of Latino dual language program students. Overall, proportionately more Latino students in the dual language program performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 08-09. When spring and fall 08-09 grade 1 scores were compared for Latino students in the English only environment, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 24$) = 11.93, $p = .018$. These results indicate that there was a significant positive change in the overall reading ability of Latino English only environment students. Overall, proportionately more Latino students in the English only environment performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 08-09.

Additionally, when spring and fall 08-09 grade 1 scores were compared for White students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 25$) = 16.78, $p = .000$. These results indicate that there was a significant positive change in the overall reading ability of White dual language program

Table 11

χ^2 Results of 08-09 Grade 1 Spring and Fall DRA2 Performance by Ethnicity (N = 108)

Group	# Valid	Pearson Value	*Df*	Asymp. Sig.
Other Ethnicities				
EOI	10	10.00[a]	2	.007
DLP	11	12.10[b]	4	.017
Latino				
EOI	24	11.93[c]	4	.018
DLP	18	6.43[d]	2	.040
White				
EOI	20	14.40[e]	4	.006
DLP	25	16.78[f]	2	.000

$p<.05$

a. 6 cells (100.0%) had expected count less than 5. The minimum expected count was 1.00.

b. 9 cells (100.0%) had expected count less than 5. The minimum expected count was 0.18.

c. 7 cells (77.8%) had expected count less than 5. The minimum expected count was 0.25.

d. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.44.

e. 9 cells (100.0%) had expected count less than 5. The minimum expected count was 0.40.

f. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.96.

students. Overall, proportionately more White students in the dual language program performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 08-09. When spring and fall 08-09 grade 1 scores were compared for White students in the English only environment, the results of the χ^2 contingency test were significant, χ^2

($df = 4$, $n = 20$) = 14.36, $p = .006$. These results indicate that there was a significant positive change in the overall reading ability of White English only environment students. Overall, proportionately more White students in the English only environment performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 08-09.

Performance of the total sample by gender.

An analysis of performance was examined by gender and program. Table 12 provides a summary of these results. When spring and fall 08-09 grade 1 scores were compared for female students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 33$) = 20.23, $p = .000$. These results indicate that there was a significant positive change in the overall reading ability of female dual language program students. Overall, proportionately more female students in the dual language program performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 08-09. When spring and fall 08-09 grade 1 scores were compared for female students in the English only environment, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 31$) = 24.52, $p = .000$. These results indicate that there was a significant positive change in the overall reading ability of female English only environment students. Overall, proportionately more female students in the English only environment performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 08-09.

With respect to male students in the dual language program, when spring and fall 08-09 grade 1 scores were compared for male students in the dual language program, the

Table 12

χ^2 Results of 08-09 Grade 1 Spring and Fall DRA2 Performance by Gender (N = 108)

Group	# Valid	Pearson Value	*Df*	Asymp. Sig.
Female				
EOI	31	24.52[a]	4	.000
DLP	33	20.30[b]	4	.000
Male				
EOI	23	10.74[c]	4	.030
DLP	21	16.91[d]	2	.000

p<.05

a. 6 cells (66.7%) had expected count less than 5. The minimum expected count was 1.29.

b. 7 cells (77.8%) had expected count less than 5. The minimum expected count was 0.36.

c. 7 cells (77.8%) had expected count less than 5. The minimum expected count was 0.17.

d. 5 cells (83.3%) had expected count less than 5. The minimum expected count was 1.33.

results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 21$) = 16.91, $p = .000$. These results indicate that there was a significant positive change in the overall reading ability of male dual language program students. Overall, proportionately more male students in the dual language program performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 08-09. A similar analysis of male students in the English only environment was conducted. The results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 23$) = 10.74, $p = .030$. These results indicate that there was a significant positive change in the overall reading ability of male English only environment students. Overall, proportionately more male students in the English only

environment performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 08-09.

Second Follow Up of 2007-2008 Kindergarten: 2009-2010 Grade 2

During the 09-10 academic year, 106 grade 2 students had valid fall and spring DRA2 scores and from these, a total of 68 grade 2 students with valid scores were included in the analysis ($N = 68$). Table 13 provides a summary of the results.

In 09-10, 50% of the grade 2 students were dual language program students and 50% were English only environment. For the total sample, 60.3% of the students were female and 39.7% were male. When these numbers were examined by program, 58.8% of the English only environment students were female and 61.8% of the dual language program students were female, while 41.2% of the English only environment students were male and 38.2% of the dual language program students were male. With respect to ethnicity in the overall sample, 2.9% of the students were Asian, 11.8% were Black, 44.1% were Latino, 1.5% was Multiracial, and 39.7% were White. When these numbers were examined by program, 5.9% of the English only environment and 0.0% of the dual language program students were Asian, 8.8% of the English only environment and 14.7% of the dual language program students were Black, 44.1% of the English only environment students and 44.1% of the dual language program students were Latino, 2.9% of the English only environment students and 0.0% of the dual students and 41.2% of the dual language program students were White.

Table 13

Crosstabulation of 09-10 Grade 2 Gender, Ethnicity, and Program (N = 68)

	Program		
Group	EOI	DLP	Total
Female	20	21	41
Male	14	13	27
Asian	2	0	2
Black	3	5	8
Latino	15	15	30
Multiracial	1	0	1
White	13	14	27

Performance of the total sample.

An analysis of performance was examined for the total 09-10 grade 2 sample. Table 14 provides a summary of these results. Of the 68 grade 2 students, 57.4% of the students performed below grade level, 11.8% performed on grade level, and 30.9% performed above grade level in the fall. For this group on the spring administration, 57.4% performed below grade level, 33.8% performed on grade level, and 8.8% performed above grade level. The results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $N = 68$) = 66.07, $p = .000$. These results indicate that there was a significant negative change in the overall reading ability of students in grade 2 in 2009-2010. Overall, proportionately fewer students performed at a higher grade level at the end of

Table 14

Crosstabulation of 09-10 Grade 2 Spring and Fall DRA2 Performance by Grade

DRA2 Score	Fall			
Spring	Below	On	Above	Total
Below	38	1	0	39
On	1	7	15	23
Above	0	0	6	6
Total	39	8	21	68

χ^2 Results of 09-10 Grade 2 Spring and Fall DRA2 Performance by Grade

N	Pearson Value	*Df*	Asymp. Sig.
68	66.07	4	.000

p<.005

5 cells (55.6%) had expected count less than 5. The minimum expected count was 0.71.

grade 2 as opposed to the beginning.

Performance of the total sample by ethnicity.

An analysis of performance was examined by ethnicity and program. Table 15 provides a summary of these results. When the spring and fall 09-10 grade 2 scores were compared for Other Ethnicity students dual language program, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 5$) = 5.00, $p = .082$. These results indicate that there was not a significant change in the overall reading ability of Other Ethnicity dual language program students. When the spring and fall 09-10 grade 2 scores

were compared for Other Ethnicity students in the English only environment, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 6$) = 6.00, $p = .050$. These results indicate that there was not a significant change in the overall reading ability of Other Ethnicity dual language program students.

With respect to Latino students in the dual language program, when spring and fall 09-10 grade 2 scores were compared, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 15$) = 15.00, $p = .001$. These results indicate that there was a significant positive change in the overall reading ability of Latino dual language program students. Overall, proportionately more Latino students in the dual language program performed at on or above grade level at the end of grade 2 as opposed to in the beginning in 09-10. When spring and fall 09-10 grade 2 scores were compared for Latino students in the English only environment, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 15$) = 10.91, $p = .004$. These results indicate that there was a significant negative change in the overall reading ability of Latino English only environment students. Overall, proportionately fewer Latino students in the English only environment performed at a higher grade level at the end of grade 2 as opposed to in the beginning in 09-10.

Additionally, when spring and fall 09-10 grade 2 scores were compared for White students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 13$) = 14.93, $p = .005$. These results indicate that there was a significant negative change in the overall reading ability of White dual language program students. Overall, proportionately fewer White students in the dual language program performed at a higher grade level at the end of grade 2 as opposed to in the beginning in

Table 15

χ^2 Results of 09-10 Grade 2 Spring and Fall DRA2 Performance by Ethnicity (N = 68)

Group	# Valid	Pearson Value	*Df*	Asymp. Sig.
Other Ethnicities				
EOI	6	6.00[a]	2	.050
DLP	5	5.00[b]	2	.082
Latino				
EOI	15	10.91[c]	2	.004
DLP	15	15.00[d]	2	.001
White				
EOI	13	14.86[e]	4	.005
DLP	14	14.93[f]	4	.005

p<.05

a. 6 cells (100.0%) had expected count less than 5. The minimum expected count was 0.17.

b. 6 cells (100.0%) had expected count less than 5. The minimum expected count was 0.20.

c. 5 cells (83.3%) had expected count less than 5. The minimum expected count was 0.33.

d. 5 cells (83.3%) had expected count less than 5. The minimum expected count was 0.13.

e. 9 cells (100.0%) had expected count less than 5. The minimum expected count was 0.46.

f. 9 cells (100.0%) had expected count less than 5. The minimum expected count was 0.14.

09-10. With respect to the spring and fall 09-10 grade 2 scores being compared for White students in the English only environment, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 14$) = 14.86, $p = .005$. These results indicate that there was a significant negative change in the overall reading ability of White English only

environment students. Overall, proportionately fewer White students in the English only environment performed on or above grade level at the end of grade 2 as opposed to in the beginning in 09-10.

Performance of the total sample by gender.

An analysis of performance was examined by gender and program. Table 16 provides a summary of these results. When spring and fall 09-10 grade scores were compared for female students in the two dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 21$) = 25.20, $p = .000$. These results indicate that there was a significant negative change in the overall reading ability of female dual language program students. Overall, proportionately fewer female students in the dual language program performed at a higher grade level at the end of grade 2 as opposed to in the beginning in 09-10. When spring and fall 09-10 grade 2 scores were compared for female students in the English only environment, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 20$) = 17.46, $p = .002$. These results indicate that there was a significant positive change in the overall reading ability of female English only environment students. Overall, proportionately more female students in the dual language program performed on or above grade level at the end of grade 2 as opposed to in the beginning in 09-10.

With respect to male students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 14$) = 13.00, $p = .002$. These results indicate that there was a significant negative change in the overall reading ability of male

Table 16

χ^2 Results of 09-10 Grade 2 Spring and Fall DRA2 Performance by Gender (N = 68)

Group	# Valid	Pearson Value	*Df*	Asymp. Sig.
Female				
EOI	20	17.46[a]	4	.002
DLP	21	25.20[b]	4	.000
Male				
EOI	14	14.93[c]	4	.005
DLP	13	13.00[d]	2	.002

p<.05

a. 9 cells (100.0%) had expected count less than 5. The minimum expected count was 0.20.

b. 8 cells (88.9%) had expected count less than 5. The minimum expected count was 0.29.

c. 9 cells (100.0%) had expected count less than 5. The minimum expected count was 0.14.

d. 5 cells (83.3%) had expected count less than 5. The minimum expected count was 0.15.

dual language program students. Overall, proportionately fewer male students in the dual language program performed on or above grade level at the end of grade 2 as opposed to in the beginning in 09-10. A similar analysis of male students in the English only environment was conducted. The results of the χ^2 contingency test were significant, χ^2 (df = 4, n = 13) = 14.93, p = .005. These results indicate that there was a significant negative change in the overall reading ability of male English only environment students. Overall, proportionately fewer male students in the English only environment performed at a higher grade level at the end of grade 2 as opposed to in the beginning in 09-10.

Results for Cohort 2

When examining Cohort 2, 472 students had valid fall and spring DRA2 scores and from these, a total of 230 students with valid scores were included in the analysis (N = 230). Baseline equivalence testing was done to determine whether there were significant differences between the two groups of students based on gender and ethnicity. Table 17 provides a summary of the results.

For Cohort 2, 50% of the students were dual language students and 50% were English only environment students. For the total sample, 52.2% of the students were female and 47.8% were male. When these numbers were examined by program, 25.2% of the English only environment students were female and 27.0% of the dual language students were female, while 24.8% of the English only environment students were male and 23.0% of the dual language students were male.

With respect to ethnicity in the overall Cohort 2 sample, 24.3% of the students were Other Ethnicity, 43.1% were Latino, and 32.6% were White. When these numbers were examined by program, 11.3% of the English only environment and 13.1% of the dual language students were Other Ethnicity, 22.6% of the English only environment students and 20.4% of the dual language program students were Latino, and 16.1% of the English only environment students and 16.5% of the dual language program students were White.

When gender and status were compared, the results of the χ^2 contingency test were not significant, χ^2 (df = 1, n = 230) = 0.28, p = .597. These results indicate that there was not a significant difference in gender baseline equivalency for Cohort 2. With respect to ethnicity and status being compared Cohort 2 students, the results of the χ^2

Table 17

Crosstabulation of Cohort 2 Gender, Ethnicity, and Program (N = 230)

	Program		
Group	EOI	DLP	Total
Female	58	62	120
Male	57	53	110
Other Ethnicities	26	30	56
Latino	52	47	99
White	37	38	75

χ^2 Results of Cohort 2 Baseline Equivalency Testing by Trait

Trait	*N*	Pearson Value	*Df*	Asymp. Sig.
Gender	230	0.28[a]	1	.597
Ethnicity	230	0.55[b]	2	.759

p<.005

a. 0 cells (0.0%) had expected count less than 5. The minimum expected count was 55.00.

b. 0 cells (0.0%) had expected count less than 5. The minimum expected count was 28.00.

contingency test were not significant, χ^2 ($df = 2$, $n = 230$) = 0.55, $p = .759$. These results indicate that there was not a significant difference in ethnicity baseline equivalency for this cohort.

2008-2009 Kindergarten

During the 08-09 academic year, 253 kindergarten students had valid fall and spring DRA2 scores and from these, a total of 118 kindergarten students with valid scores were included in the analysis ($N = 118$). Table 18 provides a summary of the results. In

Table 18

Crosstabulation of 08-09 Kindergarten Gender, Ethnicity, and Program (N = 118)

	Program		
Group	EOI	DLP	Total
Female	30	33	63
Male	29	26	55
Asian	3	2	5
Black	10	10	20
Latino	25	25	50
Multiracial	0	3	3
White	21	19	40

08-09, 50% of the kindergarten students were dual language students and 50%, were English only environment students. For the total sample, 53.4% of the students were female and 46.6% were male. When these numbers were examined by program, 50.8% of the English only environment students were female and 55.9% of the dual language program students were female, while 49.2% of the English only environment students were male and 44.1% of the dual language students were male.

With respect to ethnicity in the overall sample, 4.2% of the students were Asian, 16.9% were Black, 42.4% were Latino, 2.5% were Multiracial, and 33.9% were White. When these numbers were examined by program, 5.1% of the English only environment and 3.4% of the dual language program students were Asian, 16.9% of the English only environment and 16.9% of the dual language program students were Black, 42.4% of the

English only environment students and 42.4% of the dual language program students were Latino, 0.0% of the English only environment students and 5.1% of the dual language program students were Multiracial, and 35.6% of the English only environment students and 32.2% of the dual language program students were White.

Performance of the total sample.

An analysis of performance was examined for the total 08-09 kindergarten sample. Table 19 provides a summary of these results. Of the 118 kindergarten students, 72.9% performed on grade level and 27.1% performed above grade level in the fall. For this group on the spring administration, 22.0% performed below grade level, 53.4% performed on grade level, and 24.6% performed above grade level. The results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $N = 118$) = 22.45, $p = .000$. These results indicate that there was a significant negative change in the overall reading ability of students in kindergarten in 2008-2009. Overall, proportionately fewer students were on or above grade level at the end of kindergarten as opposed to the beginning.

Performance of the total sample by ethnicity.

An analysis of performance was examined by ethnicity and program. Table 20 provides a summary of these results. When the spring and fall 08-09 kindergarten scores were compared for Other Ethnicity students in the dual language program, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 15$) = 0.94, $p = .626$. These results indicate that there was not a significant change in the overall reading ability of Other Ethnicity dual language program students. When the spring and fall 08-09

Table 19

Crosstabulation of 08-09 Kindergarten Spring and Fall DRA2 Performance by Grade

DRA2 Score	Fall		
Spring	On	Above	Total
Below	25	1	26
On	49	14	63
Above	12	17	29
Total	86	32	118

χ^2 Results of 08-09 Kindergarten Spring and Fall DRA2 Performance by Grade

N	Pearson Value	*Df*	Asymp. Sig.
118	22.45	2	.000

p<.005

0 cells (0.0%) had expected count less than 5. The minimum expected count was 7.05.

kindergarten scores were compared for Other Ethnicity students in the English only environment, the results of the χ^2 contingency test were not significant, χ^2 (df = 2, n = 13) = 5.72, p = .057. These results indicate that there was not a significant change in the overall reading ability of Other Ethnicity English only environment students.

With respect to Latino students in the dual language program, when spring and fall 08-09 kindergarten scores were compared, the results of the χ^2 contingency test were not significant, χ^2 (df = 2, n = 25) = 4.90, p = .086. These results indicate that there was

Table 20

χ^2 Results of 08-09 Kindergarten Spring and Fall DRA2 Performance by Ethnicity (N = 118)

Group	# Valid	Pearson Value	*Df*	Asymp. Sig.
Other Ethnicities				
EOI	13	5.72[a]	2	.057
DLP	15	0.94[b]	2	.626
Latino				
EOI	25	4.49[c]	2	.106
DLP	25	4.90[d]	2	.086
White				
EOI	21	2.99[f]	2	.224
DLP	19	6.21[g]	2	.045

p<.05

a. 6 cells (100.0%) had expected count less than 5. The minimum expected count was 1.23.

b. 5 cells (83.3%) had expected count less than 5. The minimum expected count was 0.20.

c. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 1.20.

d. 5 cells (83.3%) had expected count less than 5. The minimum expected count was 0.72.

e. No statistics were computed because 08-09 kindergarten Fall DRA Score was a constant.

f. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.86.

g. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.63.

not a significant change in the overall reading ability of Latino dual language program students. When spring and fall 08- 09 kindergarten scores were compared for Latino

students in the English only instruction, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 25$) = 4.49, $p = .106$. These results indicate that there was not a significant change in the overall reading ability of Latino English only environment students.

Additionally, when spring and fall 08-09 kindergarten scores were compared for White students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 19$) = 6.21, $p = .045$. These results indicate that there was a significant negative change in the overall reading ability of White dual language program students. Overall, proportionately fewer White students in the dual language program performed on or above grade level at the end of kindergarten as opposed to in the beginning in 08-09. With respect to the spring and fall 07-08 kindergarten scores being compared for White students in the English only environment, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 21$) = 2.29, $p = .224$. These results indicate that there was not a significant change in the overall reading ability of White English only environment students.

Performance of the total sample by gender.

An analysis of performance was examined by gender and program. Table 21 provides a summary of these results. When the spring and fall 08-09 kindergarten scores were compared for female students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 33$) = 9.59, $p = .008$. These results indicate that there was a significant negative change in the overall reading ability of female dual language program students. Overall, proportionately fewer female students

Table 21

χ^2 Results of 08-09 Kindergarten Spring and Fall DRA2 Performance by Gender (N = 118)

Group	# Valid	Pearson Value	*Df*	Asymp. Sig.
Female				
EOI	30	6.79[a]	2	.034
DLP	33	9.59[b]	2	.008
Male				
EOI	29	6.60[c]	2	.037
DLP	26	3.05[d]	2	.218

$p<.05$

a. 3 cells (50.0%) had expected count less than 5. The minimum expected count was 0.67.

b. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.76.

c. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 1.86.

d. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 1.54.

in the dual language program performed on or above grade level at the end of kindergarten as opposed to in the beginning in 08-09. A similar analysis of female students in the English only environment setting was conducted. The results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 30$) = 6.79, $p = .034$. These results indicate that there was a significant negative change in the overall reading ability of female English only environment students. Overall, proportionately fewer female students in the English only environment performed on or above grade level at the end of kindergarten as opposed to in the beginning in 08-09.

With respect to male students in the dual language program, when spring and fall 08-09 kindergarten scores were compared, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 26$) = 3.05, $p = .218$. These results indicate that there was not a significant change in the overall reading ability of male dual language program students. When spring and fall 08-09 kindergarten scores were compared for male students in the English only environment, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 29$) = 6.60, $p = .037$. These results indicate that there was a significant negative change in the overall reading ability of male English only environment students. Overall, proportionately fewer male students in the English only environment setting performed on or above grade level at the end of kindergarten as opposed to in the beginning in 08-09.

Follow Up of 2008-2009 Kindergarten: 2009-2010 Grade 1

During the 09-10 academic year, 219 grade 1 students had valid fall and spring DRA2 scores and from these, a total of 112 grade 1 students with valid scores were included in the analysis ($N = 112$). Table 22 provides a summary of the results.

In 09-10, 50% of the grade 1 students were dual language students and 50% were English only environment students. For the total sample, 50.9% of the students were female and 49.1% were male. When these numbers were examined by program, 50.0% of the English only environment students were female and 51.8% of the dual language program students were female, while 50.0% of the English only environment students were male and 48.2% of the dual language program students were male.

Table 22

Crosstabulation of 09-10 Grade 1 Gender, Ethnicity, and Program (N = 112)

	Program		
Group	EOI	DLP	Total
Female	28	29	57
Male	28	27	55
Asian	6	3	9
Black	7	10	17
Latino	27	22	49
Multiracial	0	2	2
White	16	19	35

With respect to ethnicity in the overall sample, 8.0% of the students were Asian, 15.2% were Black, 43.8% were Latino, 1.8% were Multiracial, and 31.3% were White. When these numbers were examined by program, 10.7% of the English only environment and 5.4% of the dual language students were Asian, 12.5% of the English only environment and 17.9% of the dual language students were Black, 48.2% of the English only environment and 39.3% of the dual language students were Latino, 0.0% of the English only environment and 3.6% of the dual language students were Multiracial, and 28.6% of the English only environment and 33.9% of the dual language students were White.

Performance of the total sample.

An analysis of performance was examined for the total 09-10 grade 1 sample. Table 23 provides a summary of these results. Of the 112 grade 1 students, 39.3% performed below grade level, 11.6% performed on grade level, and 49.1% performed above grade level in the fall. For this group on the spring administration, 21.4% performed below grade level, 53.6% performed on grade level, and 25.0% performed above grade level. The results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $N = 112$) = 52.61, $p = .000$. These results indicate that there was a significant positive change in the overall reading ability of students in grade 1 in 2009-2010. Overall, proportionately more students were on or above grade level at the end of grade 1 as opposed to the beginning.

Performance of the total sample by ethnicity.

An analysis of performance was examined by ethnicity and program. Table 24 provides a summary of these results. When the spring and fall 08-09 grade 1 scores were compared for Other Ethnicity students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 15$) = 9.82, $p = .044$. These results indicate that there was a significant positive change in the overall reading ability of Other Ethnicity dual language program students. Overall, proportionately more Other Ethnicity students in the dual language program performed on or above grade level at the end of grade 1 as opposed to in the beginning in 09-10. When spring and fall 09-10 grade 1 scores were compared for Other Ethnicity students in the English only environment, the

Table 23

Crosstabulation of 09-10 Grade 1 Spring and Fall DRA2 Performance by Grade

DRA2 Score	Fall			
Spring	Below	On	Above	Total
Below	21	3	0	24
On	22	10	28	60
Above	1	0	27	28
Total	44	13	55	108

χ^2 Results of 09-10 Grade 1 Spring and Fall DRA2 Performance by Grade

N	Pearson Value	*Df*	Asymp. Sig.
108	52.61	4	.000

p<.005

2 cells (22.2%) had expected count less than 5. The minimum expected count was 2.79.

results of the χ^2 contingency test were not significant, χ^2 ($df = 4$, $n = 13$) = 7.43, $p = .115$. These results indicate that there was not a significant change in the overall reading ability of Other Ethnicity English only environment students.

With respect to Latino students in the dual language program, when spring and fall 09-10 grade 1 scores were compared, the results of the χ^2 contingency test were not significant, χ^2 ($df = 4$, $n = 22$) = 8.28, $p = .082$. These results indicate that there was not a significant change in the overall reading ability of Latino dual language program students. When spring and fall 09-10 grade 1 scores were compared for Latino students in the English only environment, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 27$) = 11.60, $p = .021$. These results indicate that there was a significant

Table 24

χ^2 Results of 09-10 Grade 1 Spring and Fall DRA2 Performance by Ethnicity (N = 112)

Group	# Valid	Pearson Value	*Df*	Asymp. Sig.
Other Ethnicities				
EOI	13	7.43[a]	4	.115
DLP	15	9.82[b]	4	.044
Latino				
EOI	27	11.60[c]	4	.021
DLP	22	8.28[d]	4	.082
White				
EOI	16	10.06[e]	4	.039
DLP	19	9.88[f]	4	.042

$p<.05$

a. 9 cells (100.0%) had expected count less than 5. The minimum expected count was 0.15.

b. 8 cells (88.9%) had expected count less than 5. The minimum expected count was 0.13.

c. 7 cells (77.8%) had expected count less than 5. The minimum expected count was 0.44.

d. 8 cells (88.9%) had expected count less than 5. The minimum expected count was 0.91.

e. 9 cells (100.0%) had expected count less than 5. The minimum expected count was 0.13.

f. 7 cells (77.8%) had expected count less than 5. The minimum expected count was 0.11.

positive change in the overall reading ability of Latino English only environment students. Overall, proportionately more Latino students in the English only environment performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 09-10.

Additionally, when spring and fall 09-10 grade 1 scores were compared for White students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 19$) = 9.88, $p = .042$. These results indicate that there was a significant positive change in the overall reading ability of White dual language program students. Overall, proportionately more White students in the dual language program performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 09-10. When spring and fall 09-10 grade 1 scores were compared for White students in the English only environment, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 16$) = 10.06, $p = .039$. These results indicate that there was a significant positive change in the overall reading ability of White English only environment students. Overall, proportionately more White students in the English only environment performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 09-10.

Performance of the Total Sample by Gender.

An analysis of performance was examined by gender and program. Table 25 provides a summary of these results. When spring and fall 09-10 grade 1 scores were compared for female students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 4$, $n = 29$) = 11.62, $p = .020$. These results indicate that there was a significant positive change in the overall reading ability of female dual language program students. Overall, proportionately more female students in the dual language program performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 09-10. When spring and fall 09-10 grade 1 scores were

Table 25

χ^2 Results of 09-10 Grade 1 Spring and Fall DRA2 Performance by Gender (N = 112)

Group	# Valid	Pearson Value	*Df*	Asymp. Sig.
Female				
EOI	29	14.88[a]	4	.005
DLP	30	11.62[b]	4	.020
Male				
EOI	31	13.96[c]	4	.007
DLP	30	12.86[d]	4	.012

p<.05

a. 7 cells (77.8%) had expected count less than 5. The minimum expected count was 0.71.

b. 7 cells (77.8%) had expected count less than 5. The minimum expected count was 0.62.

c. 7 cells (77.8%) had expected count less than 5. The minimum expected count was 0.29.

d. 7 cells (77.8%) had expected count less than 5. The minimum expected count was 0.30.

compared for female students in the English only environment, the results of the χ^2 contingency test were significant, χ^2 (df = 4, n = 28) = 14.88, p = .005. These results indicate that there was a significant positive change in the overall reading ability of female English only environment students. Overall, proportionately more female students in the English only environment performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 09-10.

With respect to male students in the dual language program, when spring and fall 09-10 grade 1 scores were compared for male students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 (df = 4, n = 27) = 12.86, p = .012.

These results indicate that there was a significant positive change in the overall reading ability of male dual language program students. Overall, proportionately more male students in the dual language program performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 09-10. A similar analysis of male students in the English only environment was conducted. The results of the χ^2 contingency test were significant, χ^2 (df = 4, n = 28) = 13.96, p = .007. These results indicate that there was a significant positive change in the overall reading ability of male English only environment students. Overall, proportionately more male students in the English only environment performed at a higher grade level at the end of grade 1 as opposed to in the beginning in 09-10.

Results for Cohort 3

When examining Cohort 3, 234 students had valid fall and spring DRA2 scores and from these, a total of 120 students with valid scores were included in the analysis (N= 120). Baseline equivalence testing was done to determine whether there were significant differences between the two groups of students based on gender and ethnicity. Table 26 provides a summary of the results.

For Cohort 3, 50% of the students were dual language students and 50% were English only environment students. For the total sample, 49.2% of the students were female and 50.8% were male. When these numbers were examined by program, 24.2% of the English only environment students were female and 25.0% of the dual language students were female, while 25.8% of the English only environment students were male and 25.0% of the dual language students were male.

Table 26

Crosstabulation of Cohort 3 Gender, Ethnicity, and Program (N = 120)

	Program		
Group	EOI	DLP	Total
Female	29	30	59
Male	31	30	61
Other Ethnicities	26	24	50
Latino	14	10	24
White	20	26	46

χ^2 Results of Cohort 3 Baseline Equivalency Testing by Trait

Trait	*N*	Pearson Value	*Df*	Asymp. Sig.
Gender	120	0.03[a]	1	.885
Ethnicity	120	1.53[b]	2	.466

$p<.005$

a. 0 cells (0.0%) had expected count less than 5. The minimum expected count was 29.50.

b. 0 cells (0.0%) had expected count less than 5. The minimum expected count was 12.00.

With respect to ethnicity in the overall Cohort 3 sample, 20.0% of the students were Other Ethnicity, 41.7% were Latino, and 38.3% were White. When these numbers were examined by program, 11.6% of the English only environment and 8.3% of the dual language students were Other Ethnicity, 21.7% of the English only environment students and 20.0% of the dual language program students were Latino, and 16.7% of the English only environment students and 21.7% of the dual language program students were White.

When gender and status were compared, the results of the χ^2 contingency test were not significant, χ^2 ($df = 1$, $n = 120$) = 0.03, $p = .855$. These results indicate that there was not a significant difference in gender baseline equivalency for Cohort 3. With respect to ethnicity and status being compared Cohort 3 students, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 120$) = 1.53, $p = .466$. These results indicate that there was not a significant difference in ethnicity baseline equivalency for this cohort.

2009-2010 Kindergarten

During the 09-10 academic year, 234 kindergarten students had valid fall and spring DRA2 scores and from these, a total of 120 kindergarten students with valid scores were included in the analysis ($N = 120$). Table 27 provides a summary of the results.

In 09-10, 50% of the students were dual language program students and 50% were English only environment students. For the total sample, 49.2% of the students were female and 50.8% were male. When these numbers were examined by program, 48.3% of the English only environment students were female and 50.0% of the dual language students were female, while 51.7% of the English only environment students and 50.0% of the dual language students were male.

With respect to ethnicity in the overall sample, 9.2% of the students were Asian, 9.2% were Black, 41.7% were Latino, 1.7% were Multiracial, and 38.3% were White. When these numbers were examined by program, 13.3% of the English only environment and 5.0% of the dual language students were Asian, 8.3% of the English only environment and 10.0% of the dual language students were Black, 43.3% of the English

Table 27

Crosstabulation of 09-10 Kindergarten Gender, Ethnicity, and Program (N = 120)

	Program		
Group	EOI	DLP	Total
Female	29	30	59
Male	31	30	61
Asian	8	3	11
Black	5	6	11
Latino	26	24	50
Multiracial	1	1	2
White	20	26	46

only environment and 40.0% of the dual language students were Latino, 1.7% of the English only environment and 1.7% of the dual language students were Multiracial, and 33.3% of the English only environment and 43.3% of the dual language students were White.

Performance of the total sample.

An analysis of performance was examined for the total 08-09 kindergarten sample. Table 28 provides a summary of these results. Of the 120 kindergarten students, 76.7% of the students performed on grade level and 23.3% performed above grade level in the fall. For this group on the spring administration, 9.2% of the students performed below grade level, 49.2% performed on grade level, and 41.6% performed above grade level. The results of the χ^2 contingency test were significant, χ^2 ($df = 2$, N = 120) = 24.99,

Table 28

Crosstabulation of 09-10 Kindergarten Spring and Fall DRA2 Performance by Grade

DRA2 Score	Fall		
Spring	On	Above	Total
Below	11	0	11
On	54	5	59
Above	27	23	50
Total	92	28	120

χ^2 Results of 09-10 Kindergarten Spring and Fall DRA2 Performance by Grade

N	Pearson Value	*Df*	Asymp. Sig.
120	24.99	2	.000

p<.005

1 cell (16.7%) has expected count less than 5. The minimum expected count was 2.57.

$p = .000$. These results indicate that there was a significant negative change in the overall reading ability of students in kindergarten in 2009-2010. Overall, proportionately fewer students were on or above grade level at the end of kindergarten as opposed to the beginning.

Performance of the total sample by ethnicity.

An analysis of performance was examined by ethnicity and program. Table 29 provides a summary of these results. When the spring and fall 09-10 kindergarten scores were compared for Other Ethnicity students in the dual language program, the results of

Table 29

χ^2 Results of 09-10 Kindergarten Spring and Fall DRA2 Performance by Ethnicity (N = 120)

Group	# Valid	Pearson Value	*Df*	Asymp. Sig.
Other Ethnicities				
EOI	14	1.12[a]	2	.571
DLP	10	6.43[b]	1	.011
Latino				
EOI	26	7.22[c]	2	.027
DLP	24	4.94[d]	2	.085
White				
EOI	20	4.17[e]	2	.125
DLP	26	1.81[f]	2	.404

p<.05

a. 5 cells (83.3%) had expected count less than 5. The minimum expected count was 0.57.

b. 4 cells (100.0%) had expected count less than 5. The minimum expected count was 1.20.

c. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.31.

d. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.33.

e. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.35.

f. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.38.

the χ^2 contingency test were significant, χ^2 ($df = 1$, $n = 10$) = 6.43, $p = .011$. These results indicate that there was a significant positive change in the overall reading ability of Other Ethnicity dual language program students. Overall, proportionately more Other Ethnicity students in the dual language program performed at a higher grade level at the end of

kindergarten as opposed to in the beginning in 09-10. When the spring and fall 09-10 kindergarten scores were compared for Other Ethnicity students in the English only environment, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 14$) = 1.12, $p = .571$. These results indicate that there was not a significant change in the overall reading ability of Other Ethnicity English only environment students.

With respect to Latino students in the dual language program, when spring and fall 08-09 kindergarten scores were compared, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 24$) = 4.94, $p = .085$. These results indicate that there was not a significant change in the overall reading ability of Latino dual language program students. When spring and fall 08- 09 kindergarten scores were compared for Latino students in the English only instruction, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 26$) = 7.22, $p = .027$. These results indicate that there was a significant negative change in the overall reading ability of Latino English only environment students. Overall, proportionately fewer Latino students in the English only environment performed on or above grade level at the end of kindergarten as opposed to in the beginning in 09-10.

Additionally, when spring and fall 09-10 kindergarten scores were compared for White students in the dual language program, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 26$) = 1.81, $p = .404$. These results indicate that there was not a significant change in the overall reading ability of White dual language program students. With respect to the spring and fall 07-08 kindergarten scores being compared for White students in the English only environment, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 20$) = 4.17, $p = .125$. These results indicate that there

was not a significant change in the overall reading ability of White English only environment students.

Performance of the total sample by gender.

An analysis of performance was examined by gender and program. Table 30 provides a summary of these results. When the spring and fall 09-10 kindergarten scores were compared for female students in the dual language program, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 30$) = 9.83, $p = .007$. These results indicate that there was a significant positive change in the overall reading ability of female dual language program students. Overall, proportionately more female students in the dual language program performed on or above grade level at the end of kindergarten as opposed to in the beginning in 09-10. A similar analysis of female students in the English only environment setting was conducted. The results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 29$) = 4.30, $p = .117$. These results indicate that there was not a significant change in the overall reading ability of female English only environment students.

With respect to male students in the dual language program, when spring and fall 09-10 kindergarten scores were compared, the results of the χ^2 contingency test were not significant, χ^2 ($df = 2$, $n = 30$) = 3.15, $p = .207$. These results indicate that there was a not significant change in the overall reading ability of male dual language program students. When spring and fall 09-10 kindergarten scores were compared for male students in the English only environment, the results of the χ^2 contingency test were significant, χ^2 ($df = 2$, $n = 31$) = 6.91, $p = .032$. These results indicate that there was a significant negative

Table 30

χ^2 Results of 09-10 Kindergarten Spring and Fall DRA2 Performance by Gender (N = 120)

Group	# Valid	Pearson Value	*Df*	Asymp. Sig.
Female				
EOI	29	4.30[a]	2	.117
DLP	30	9.83[b]	2	.007
Male				
EOI	31	6.91[c]	2	.032
DLP	30	3.15[d]	2	.207

p<.05

a. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.55.

b. 3 cells (50.0%) had expected count less than 5. The minimum expected count was 0.30.

c. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.87.

d. 4 cells (66.7%) had expected count less than 5. The minimum expected count was 0.60.

change in the overall reading ability of male English only environment students. Overall, proportionately fewer male students in the English only environment setting performed on or above grade level at the end of kindergarten as opposed to in the beginning in 09-10.

Summary and Findings

Chapter IV presented the crosstabulations of students' gender, program enrollment (program), ethnicity, and DRA2 data for each grade level by cohorts of students (Cohort 1: kindergarten in 07-08, grade 1 in 08-09, and grade 2 in 09-10; Cohort

2: kindergarten in 08-09 and grade 1 in 09-10; and Cohort 3: kindergarten in 09-10). The researcher investigated the three research questions leading this study in order to more acutely examine the gradation of performance of dual language program and English only environment students by cohort, ethnicity, and gender. The data analyzed for each participant were the fall and spring scores. These scores were entered into the PASW 18.0 software package.

Research Question 1 led the researcher to investigate the relationship between the fall and spring scores by grade level. When studying the performance of the 07-10 participants, the scores were analyzed using Pearson's 2x2 Chi-Square (χ^2) Contingency Test of Independence. The results indicate that there was a significant change in the overall reading ability of students with English speaking proficiency in all grade levels for all years. There was a significant positive change in the overall reading ability of grade 1 students. The results further indicate that there was a significant negative change in the overall reading ability of Cohort 1 07-08 kindergarten, 09-10 grade 2, Cohort 2 08-09 kindergarten, and Cohort 3 09-10 kindergarten students.

Research Question 2 led the researcher to investigate the relationship between the performance on the DRA2 and ethnicity using Pearson's Layered Chi-Square (χ^2) Contingency Test of Independence. The results indicate that there was a significant change in the overall reading ability of Other Ethnicity 07-08 English only environment kindergarten, Latino 07-08 English only environment kindergarten, all 08-09 grade 1, Latino 09-10 English only environment kindergarten, White 08-09 dual language program kindergarten, Other Ethnicity 09-10 dual language program grade 1, Latino 09-

10 English only environment grade 1, all White 09-10 grade 1, and Other Ethnicity 09-10 English only environment kindergarten students.

The results further indicate that there was a significant positive change in the overall reading ability of Other Ethnicity 07-08 English only environment kindergarten, Latino 07-08 English only environment kindergarten, all 08-09 grade 1, Latino 09-10 dual language grade 2, Other Ethnicity 09-10 dual language grade 1, Latino 09-10 English only environment grade 1, all White 09-10 grade 1, and Other Ethnicity 09-10 dual language kindergarten students.

Research Question 2 results also indicate a significant negative change in the overall reading ability of Other Ethnicity 07-08 dual language kindergarten, Latino 07-08 English only environment kindergarten, Latino 09-10 English only environment grade 2, all White 09-10 grade 2, White 08-09 dual language kindergarten, and Latino 09-10 English only environment kindergarten students.

Secondly, the results for Research Question 2 indicate that there was not a significant change in the overall reading ability of Latino 07-08 dual language program kindergarten, all 07-08 White, all Other Ethnicity 09-10 grade 2, all Other Ethnicity 08-09 kindergarten, all Latino 08-09 kindergarten, White 08-09 English only environment kindergarten, Other Ethnicity 09-10 English only environment grade 1, Other Ethnicity 09-10 English only environment kindergarten, and Latino 09-10 dual language program kindergarten, and all White 09-10 kindergarten students.

Research Question 3 led the researcher to investigate the relationship between the performance on the DRA2 and gender using Pearson's Layered Chi-Square (χ^2) Contingency Test of Independence. The results indicate that there was a significant

change in the overall reading ability of all female and all male 08-09 grade 1, female 09-10 English only environment grade 2, all female and male 09-10 grade 1, and female 09-10 dual language program students.

The results further indicate that there was a significant positive change in the overall reading ability of all female and male 08-09 grade 1, female 09-10 English only environment grade 2, all female and male 09-10 grade 1, and female 09-10 dual language kindergarten students.

Research Question 3 results indicate there was a significant negative change in overall reading ability of all female and male 07-08 kindergarten, female 09-10 dual language grade 2, all male 09-10 grade 2, all female 08-09 kindergarten, and male 08-09 English only environment kindergarten students.

Finally, the results for Research Question Three also indicate that there was not a significant change in the overall reading ability of male 08-09 dual language program kindergarten, female 09-10 English only environment kindergarten, and all male 09-10 kindergarten.

Table 31 presents the results of the Chi-Square analyses of the crosstabulations of the sample of 2007-2010 students in all three cohorts. This table provides for the reader a delineated view of whether or not there was a significant improvement in overall reading ability by grade, program, ethnicity, and gender.

Table 31

Significance of Positive Change in Overall Reading Performance of Cohorts by Grade, Program, Ethnicity, and Gender

	Significant Positive Change	
Cohort	Yes	No
Cohort 1		
Kindergarten 07-08		
Grade Level	-	No
Other Ethnicities		
EOI	Yes	-
DLP	-	No
Latino		
EOI	Yes	-
DLP	-	No
White		
EOI	-	No
DLP	-	No
Female		
EOI	-	No
DLP	-	No
Male		
EOI	-	No
DLP	-	No

Cohort	Significant Positive Change	
	Yes	No
Grade 1 08-09		
Grade Level	Yes	-
Other Ethnicities		
EOI	Yes	-
DLP	Yes	-
Latino		
EOI	Yes	-
DLP	Yes	-
White		
EOI	Yes	-
DLP	Yes	-
Female		
EOI	Yes	-
DLP	Yes	-
Male		
EOI	Yes	-
DLP	Yes	-
Grade 2 09-10		
Grade Level	-	No
Other Ethnicities		
EOI	-	No

Cohort	Significant Positive Change	
	Yes	No
DLP	-	No
Latino		
EOI	Yes	-
DLP	-	No
White		
EOI	-	No
DLP	-	No
Female		
EOI	Yes	-
DLP	-	No
Male		
EOI	-	No
DLP	-	No
Cohort 2		
Kindergarten 08-09		
Grade Level	-	No
Other Ethnicities		
EOI	-	No
DLP	-	No
Latino		
EOI	-	No

Cohort	Significant Positive Change	
	Yes	No
DLP	-	No
White		
EOI	-	No
DLP	Yes	-
Female		
EOI	-	No
DLP	-	No
Male		
EOI	-	No
DLP	-	No
Grade 1 09-10		
Grade Level	Yes	-
Other Ethnicities		
EOI	-	No
DLP	Yes	-
Latino		
EOI	Yes	-
DLP	-	No
White		
EOI	Yes	-
DLP	Yes	-

Cohort	Significant Positive Change	
	Yes	No
Female		
EOI	Yes	-
DLP	Yes	-
Male		
EOI	Yes	-
DLP	Yes	-
Cohort 3		
Kindergarten 09-10		
Grade Level	-	No
Other Ethnicities		
EOI	Yes	-
DLP	-	No
Latino		
EOI	-	No
DLP	-	No
White		
EOI	-	No
DLP	-	No
Female		
EOI	-	No
DLP	Yes	-

Cohort	Significant Positive Change	
	Yes	No
Male		
EOI	-	No
DLP	-	No

CHAPTER V

SUMMARY OF THE STUDY AND FINDINGS, IMPLICATIONS, AND RECOMMENDATION

Summary of the Study

Former Secretary of the United States Department of Education, Richard W. Riley's call to create more dual language programs to benefit the academic achievement of our children has lit a fire under the development of program initiatives in many school districts nationwide. The globalization of our small communities in rates unlike which we have experienced since in the history of legal immigration to this nation is currently occurring in the United States. Research-based theory in second language acquisition has strongly supported bilingual education (Cummins, 1981). Researchers Peal and Lambert observed that exposure to two languages resulted in the mental flexibility, superiority in concept formation, and a more diversified set of mental abilities in students who spoke more than two languages (Carrera-Carrillo, 2003). Additional research on cognitive learning has provided compelling evidence that bilinguals who have achieved proficiency in their native language and target language outperform monolinguals verbally and cognitively (Nanez & Padilla, 1995). One of the most outstanding aspects of dual language education programs is that it serves both native language students and target language students in the same classroom. A cornerstone of dual language education programs is to incorporate effective language teaching techniques (Mora, Wink, & Wink, 2001).

Bilingual education is defined as the use of two languages, one of which is English, as mediums of instruction. The original intent of Title VII of the Bilingual

Education Act of 1967 was to design innovative program models, so that states and local school districts could eventually become responsible for the continuation of said programs. The decision of *Lau v. Nichols* (1974) later led to the passing of the Equal Educational Opportunity Act of 1974 which extended the ruling of *Lau v. Nichols* to all public school districts. The *Lau v. Nichols* decision was important in fostering the creation of bilingual programs.

The predominance of research has not focused on ethnicity based data on the early elementary level. A significantly limited way in which educational researchers have examined the research, particularly quantitative research disaggregated by gender and ethnicity of early elementary English proficient dual language students' English reading development, has led to a void in dual language program data and literature.

Dual language education, while different from bilingual education, is a bilingual immersion education program. In this type of program, academic instruction is delivered half the day in the target language and the other half in the native language, or in a model alternating one day in the target language and the following in the native language. Language is used as the medium of instruction rather than it being the goal of instruction. While there is a general consensus of positive results from this type of educational program, researchers are in agreement that more research must to be conducted in order to validate these hypotheses (Freeman, Freeman, & Mercuri, 2005; Howard, Sugarman, & Christian, 2003; Krashen, 2004).

The sample District created the dual language program in 2004. The District's dual language program was created to teach students to speak, read, write, and listen in two languages, English and Spanish, aligning the mission of the dual language program

with New York State Learning Standards. The creation of this program was a direct result of Former Secretary Riley's call to ensure the success of our students through a language immersion program. The dual language program was created to develop bilingualism, bi-literacy and the ability to understand, read, and write in both languages by integrating English proficient and native Spanish speakers as they learn science, social studies, and mathematics via the core curricula.

The DRA2 is the primary tool used to assess kindergarten through eighth grade students' reading skills in order to inform future instruction in the District. It is a diagnostic evaluative tool designed to be administered by classroom teachers to aid them in assessing students' independent and instructional reading levels and identify students' strengths and weaknesses in relation to reading engagement, oral reading fluency, comprehension skills, and comprehension strategies. This assesment is designed to identify students' strengths and weaknesses in relation to reading engagement, oral reading fluency, comprehension skills, and comprehension strategies. Development of the DRA2 was based on what educators and the extant research literature identified as being key characteristics and behaviors of good readers. DRA2 test administration occurs in four stages: (a) reading engagement is measured, (b) oral reading (e.g., phrasing, expression, punctuation, and miscues) is measured, (c) comprehension (e.g., ability to retell and understand the text) and printed language concepts (e.g., directionality, one-to-one word correspondence, and use of words and letters) are measured and (d) teacher analysis and scoring is conducted.

This research study was intended to examine the influence of dual language education on the development of literacy skills in proficient English speaking students in

kindergarten, grade 1, and grade 2. Due to the current accountability climate resulting from the No Child Left Behind Act of 2001 and the American Recovery and Reinvestment Act of 2009's Race to the Top Fund, the demand for research by principals, central office school district leaders, and superintendents seeking and requesting relevant and current research based on disaggregated data to be cited during discussions surrounding the adoption of programs that may produce better student outcomes is ever increasing. According to The Council of Chief State School Officers (2008), the Interstate School Leaders Licensure Consortium Standard Number Two states that school administrators must promote the success of all students by advocating, nurturing, and sustaining a school culture and instructional program conducive to student learning. The researcher aims for this study to be utilized as an integral component of the discussions leading to policy and program creation and change throughout the nation. This researcher proposes that this work will be used by educational leaders' during discussion surrounding the Structural task of program creation as detailed by Bolman and Deal (2008). More importantly, this study is intended to correlate with other studies in the exploration of the untapped area of skills development for proficient English speaking students in dual language immersion programs. It is also expected that this study will aid in filling the void in the limited way in which educational researchers have examined the research, particularly in the area of quantitative research disaggregated by gender and ethnic differences of early elementary English proficient dual language students' English reading development.

Along with being used as an important element leading to policy and program transformation and design, this study is significant as the researcher intends for it to be

used to support the benefits of an enriched immersion program to students based on the hypothesis that the program improves student English language literacy skills. The majority of recent research relating to dual language or bilingual programs such as that of Cummins (1981), Nanez and Padilla (1995), Christian, Howard, and Loeb (2000), Cloud, Genesee, and Hamayan (2000), Lindholm-Leary (2001), Mora, Wink, and Wink (2001), and Thomas and Collier (2002), focus on the influence or effect of programs on the development of skills mostly in native Spanish speaking students, leaving the area of skills development for proficient English speaking students in dual language immersion programs virtually untapped. Thus, educational researchers have left a void in dual language program data and literature. The researcher believes this study will aid in filling the void in the limited way in which educational researchers have examined the research.

Summary of the Findings

The researcher is compelled to be forthcoming by stating the examination demonstrates a lack of power due to the relatively small numbers within the sample. Due to this, the estimate of the dual language impact may be unreliable. Secondly, since there is no designated grade level expectancy in the fall of kindergarten, the negative change in performance may have influenced the interpretation of reading ability on the kindergarten level. It must also be noted that the original intent behind the creation of the DRA2 was for it to be utilized as a formative measurement assessment to direct classroom instruction based on student performance. The District's use of the DRA2 is of a summative and standardized nature which is inconsistent with the original intent of the

assessment's creation. A second fact of note is that the DRA2 is administered to students individually. This practice is contrary to that of true summative standardized assessments that are administered to students simultaneously under similar testing conditions. These two facts detail the inherent problems with the manner in which the DRA2 is used by the District and, as a result, may lead to unreliable conclusions.

The analysis of the data and findings presented the crosstabulations of students' gender, program enrollment, ethnicity, and DRA2 data for each grade level by cohorts of students. The researcher investigated the three research questions leading this study in order to more acutely examine the gradation of DRA2 performance of dual language program and English only environment students by cohort, ethnicity, and gender.

Research Question 1 led the researcher to investigate the relationship between the fall and spring scores by grade level. The results of this investigation indicate that there was a significant change in the overall reading ability of students with English speaking proficiency in all grade levels for all years. There was a significant positive change in the overall reading ability of grade 1 students. The results further indicate that there was a significant negative change in the overall reading ability of Cohort 1 07-08 kindergarten, 09-10 grade 2, Cohort 2 08-09 kindergarten, and Cohort 3 09-10 kindergarten students.

Research Question 2 led the researcher to investigate the relationship between the performance on the DRA2 and ethnicity. The results indicate that there was a significant change in the overall reading ability of Other Ethnicity 07-08 English only environment kindergarten, Latino 07-08 English only environment kindergarten, all 08-09 grade 1, Latino 09-10 English only environment kindergarten, White 08-09 dual language program kindergarten, Other Ethnicity 09-10 dual language program grade 1, Latino 09-

10 English only environment grade 1, all White 09-10 grade 1, and Other Ethnicity 09-10 English only environment kindergarten students.

Question 2 results further indicate that there was a significant positive change in the overall reading ability of Other Ethnicity 07-08 English only environment kindergarten, Latino 07-08 English only environment kindergarten, all 08-09 grade 1 ethnicities, Latino 09-10 dual language grade 2, Other Ethnicity 09-10 dual language grade 1, Latino 09-10 English only environment grade 1, all White 09-10 grade 1, and Other Ethnicity 09-10 dual language kindergarten students.

Research Question 2 results also indicate a significant negative change in the overall reading ability of Other Ethnicity 07-08 dual language kindergarten, Latino 07-08 English only environment kindergarten, Latino 09-10 English only environment grade 2, all White 09-10 grade 2, White 08-09 dual language kindergarten, and Latino 09-10 English only environment kindergarten students.

The results for Research Question 2 additionally indicate that there was not a significant change in the overall reading ability of Latino 07-08 dual language program kindergarten, all 07-08 White, all Other Ethnicity 09-10 grade 2, all Other Ethnicity 08-09 kindergarten, all Latino 08-09 kindergarten, White 08-09 English only environment kindergarten, Other Ethnicity 09-10 English only environment grade 1, Other Ethnicity 09-10 English only environment kindergarten, and Latino 09-10 dual language program kindergarten, and all White 09-10 kindergarten students.

Research Question 3 led the researcher to investigate the relationship between the performance on the DRA2 and gender. The results indicate that there was a significant change in the overall reading ability of all female and all male 08-09 grade 1, female 09-

10 English only environment grade 2, all female and male 09-10 grade 1, and female 09-10 dual language program students.

The results further indicate that there was a significant positive change in the overall reading ability of all female and male 08-09 grade 1, female 09-10 English only environment grade 2, all female and male 09-10 grade 1, and female 09-10 dual language kindergarten students.

Research Question 3 results indicate there was a significant negative change in overall reading ability of all female and male 07-08 kindergarten, female 09-10 dual language grade 2, all male 09-10 grade 2, all female 08-09 kindergarten, and male 08-09 English only environment kindergarten students.

Finally, the results for Research Question Three also indicate that there was not a significant change in the overall reading ability of male 08-09 dual language program kindergarten, female 09-10 English only environment kindergarten, and all male 09-10 kindergarten.

Implications

The results of this research study indicate there was a significant change in the overall reading ability for all students with English speaking proficiency in all grade levels for all years. This research study implies that there was a significant positive change in the overall reading ability of students who were predominantly non-White and female in either the dual language program or the English only environment who were also in the grade 1. This research study also implies that there was a significant negative change in overall reading ability of students who were predominantly Latino and male

who were in kindergarten English only environments. This research study accepts the null hypothesis and does not conclude there is a direct influence of dual language education upon the English reading skills of kindergarten through grade 2 students.

These implications suggest to the researcher that, at least in the early childhood grades of kindergarten, grade 1, and grade 2, the findings do not emphatically support the assertions of Nanez and Padilla (1995) who attest that bilingualism has a positive effect on cognitive processing and accepted that bilinguals who have achieved a high level of proficiency in their native language and target language outperform monolinguals verbally and cognitively. These findings do not support the research of Christian, Howard, and Loeb (2000) and Lindholm-Leary (2001) which points to dual language education as being the preeminent way for native English speakers, as well as non-English speakers, to achieve biliteracy, high academic achievement, and higher test scores.

The findings of this research study do not support the citation of Freeman, Freeman, and Mercuri (2005) on the additive language results achieved according to Thomas and Collier (1997, 2002) and Cloud, Genesee, and Hamayan (2000) with respect to early childhood students in kindergarten through grade 2. These studies claim that students from both language groups outperform other students and achieve above the 50^{th} percentile on standardized English reading tests by grade seven. Based upon the results of this current study, the early elementary grade level students in the dual language education program did not outperform their counterparts in the same manner as the older elementary students of the Thomas and Collier and Cloud, Genesee, and Hamayan studies did theirs.

This divergence in findings leads the researcher to question whether or not (a) age development, (b) the early stage of native language proficiency, (c) the early stage of target language proficiency, and/or (d) the necessity of higher cognitive application in the acquisition of a new language in the instructional setting could influence the significant negative change in the overall reading performance of predominantly Latino students who were male and in kindergarten. The researcher is further perplexed by what factors could influence the positive change in overall reading performance of predominantly non-White females who were in grade 1 as opposed to other racial groups.

Finally, the findings of this research study are most concurrent with the contention of the most relevant early elementary level, ethnicity-based disaggregated findings of Holobow, Genesee, and Lambert (1991). Their results demonstrated that performance differences in English and mathematics between subgroups of students did not depend on the program of instruction they were receiving and that the Black students scored as well as the middle-class and White students on the French language tests. This researcher asserts that although the curriculum areas which were the subject of the Holobow, Genesee, and Lambert study differed from the area of curriculum in this current study, the results in academic outcome for non-White and White early elementary students between the latter study and this are similar.

Recommendations for Policy, Practice, and Future Research

The research study reports an in-depth examination of the influence of a dual language program upon the overall reading performance of kindergarten, grade 1, and grade 2 students with English speaking proficiency as measured by the DRA2. While

this research study does not conclude that there is a direct influence of dual language education upon the English reading skills of kindergarten through grade 2 students, the following recommendations are suggested:

1. Any future research must control for the additional variables of socio-economic status and student attendance in addition to the variables focused upon within this study.
2. Further research is warranted in the subject district of the overall reading performance of higher level elementary students in grade 3, grade 4, grade 5, grade 6, and grade 7.
3. Further research is warranted in neighboring districts that offer comparable dual language programs in kindergarten through grade 7 to create a locally referenced comparison.
4. Further research is warranted in districts across the nation and globally that offer comparable dual language programs in kindergarten through grade 7 to create a nationally and internationally referenced comparison.
5. Further research is warranted in districts that offer dual language programs in kindergarten through grade 7 using curriculum based measures to assess the overall reading performance of students.
6. School district leadership should not promote dual language education programs as initiatives which may lead to increased student performance in the area of early childhood reading to school boards or to the community until further research has been conducted.

7. Educational leadership should emphasize that the potential for increased student reading performance may not exist for all populations within dual language programs.

8. School and district leaders should emphasize that reading performance may decrease for some early childhood populations as the second language is being acquired until further research has been conducted.

9. Leaders should focus their attention solely upon the benefits of early elementary students' acquisition of a second language at an early age as the force behind exploring the possibility of establishing a dual language program within their respective districts until further research has been established.

Conclusion

According to Carrera-Carrillo (2003), the early curricular research of Peal and Lambert observed that exposure to two languages resulted in the mental flexibility, superiority in concept formation, and a more diversified set of mental abilities in students who spoke more than two languages. So, too, does the more recent research of Nanez and Padilla (1995) provide compelling evidence that bilinguals who have achieved proficiency in their native language and target language outperform monolinguals verbally and cognitively. Considerable research has pointed to dual language education as the preeminent way for native English speakers, as well as non-English speakers, to achieve biliteracy and high academic achievement, and research reports nationwide repeatedly credit dual language education for higher test scores (Christian, Howard, & Loeb, 2000; Lindholm-Leary, 2001). Freeman, Freeman, and Mercuri (2005) cited the studies of Thomas and Collier (1997, 2002) and Cloud, Genesee, and Hamayan (2000) on

additive language program results which claim that students from both language groups outperformed other bilingual students and achieved above the 50th percentile on standardized English reading tests by grade seven. The seminal research of Holobow, Genesee, and Lambert (1991), the most relevant early elementary level, ethnicity-based disaggregated study to date, showed that performance differences in English and mathematics between subgroups of students did not depend on the program of instruction they were receiving and that the Black students scored as well as the middle-class and White students on the French language tests. The results of this research study suggests the same trend in development of reading ability for kindergarten, grade 1, and grade 2 students enrolled in a dual language program as do those mentioned in the latter study. This researcher does not conclude that there is a direct influence of dual language education upon the English reading skills of kindergarten through grade 2 students.

Decades of research proves that the early acquisition of reading knowledge for English proficient students is a crucial factor for their future academic success. Phonological awareness is widely viewed to have a strong influence on word decoding skills as the students' reading career matures. The ability to master tasks such as segmenting and blending phonemes enable practitioners to make strong predictions of correlations to beginning reading mastery. While there is a general consensus of the positive results upon reading development of a dual language education, researchers (this one included) are in agreement that more research must be conducted in order to validate these hypotheses.

With regard to leadership in the educational arena, it is this researcher's desire that this study will be added to the greater referential knowledge to be used by leaders on

a national and global level surrounding the creation of programs and educational policies that may produce better student academic outcomes. It is the researcher's hope that this work will be used by educational leaders' during discussion surrounding the structural task of program creation as detailed by Bolman and Deal (2008). Without the study of educational practices, the understanding and utilization of data, and the insight and foresight that studies such as this may provide to the leaders of education, innovative programs and initiatives, such as dual language education, may cease to exist.

In regard to the outcomes of dual language programs, students will continue to benefit from an early formal second language acquisition opportunity in an educational setting. This researcher's interest in the influence of dual language education upon the development of English reading skills of kindergarten through grade 2 students is more than an academic or professional contemplation. As the current assistant principal of a school that offers a dual language program to its kindergarten students, as the father of a student who is currently enrolled in a grade 1 dual language program, and as the husband of a educator who is currently a grade 2 dual language teacher, it is imperative to this researcher that the endeavor for understanding the obscure benefits of a dual language education continues.

The call to create more dual language programs to benefit the academic and cross-cultural achievement of our children continues to light a fire under the development of program initiatives in many school districts nationwide. It is a fire that, in this day and age of globalization, deserves continuous and zealous stoking.

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